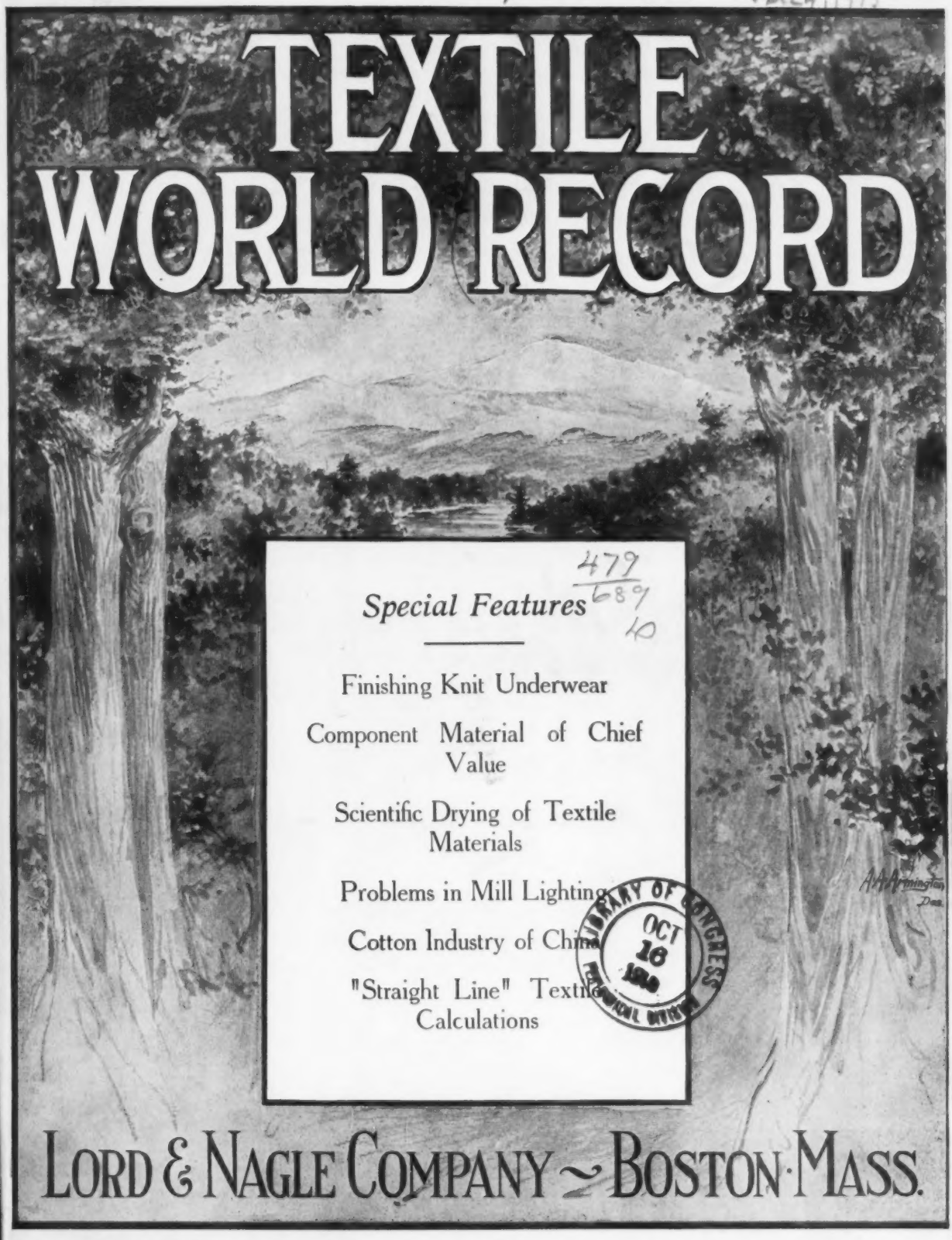
Number 1
Volume L

W. & S. Consolidated with "Textile Manufacturers Jr." in June "Textile World Jr." Dec. 4, 1915

OCTOBER, 1915

$2.00 per year
$3.00 with Directory

TEXTILE WORLD RECORD



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BOSTON

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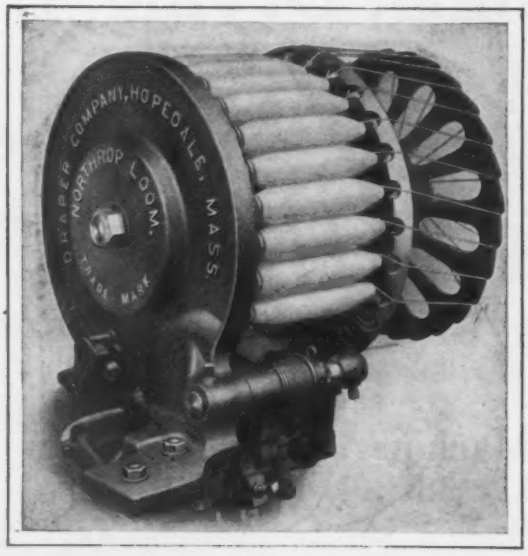

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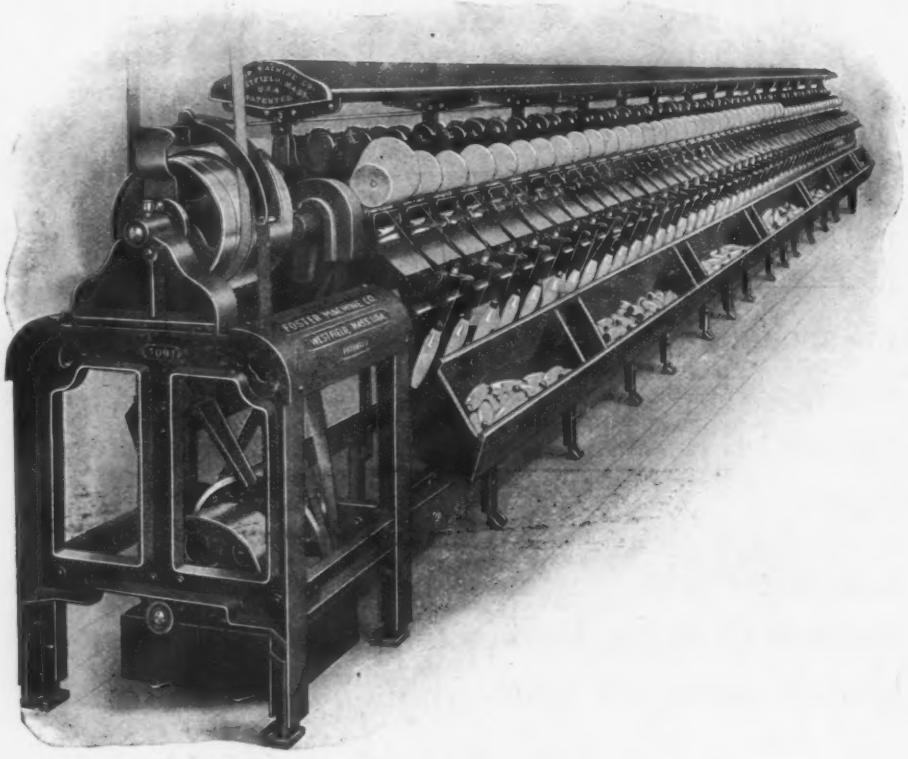

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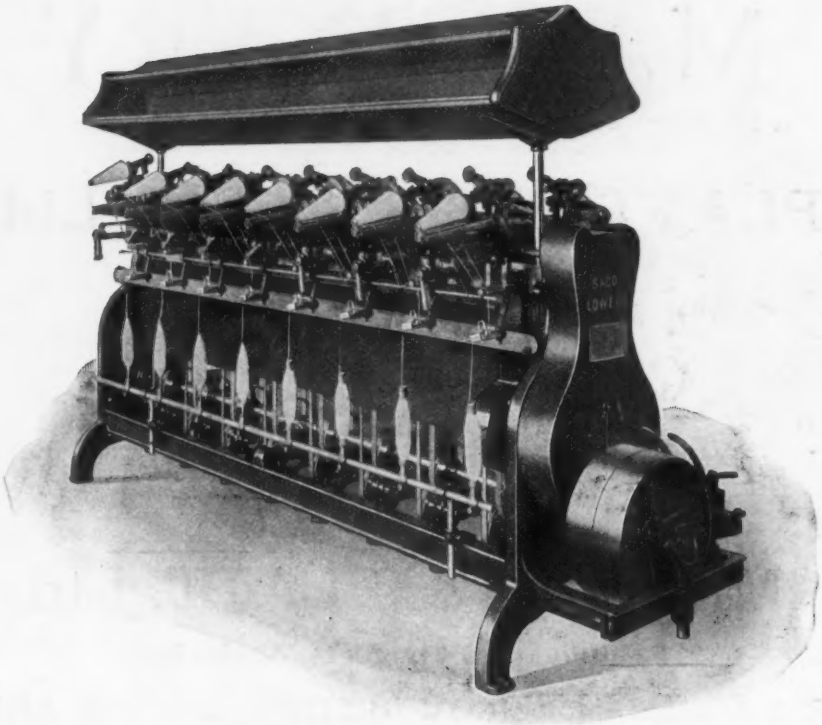

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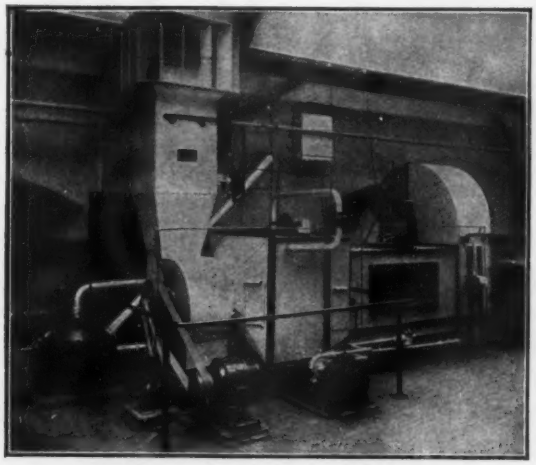

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Rice's Granolith

The Cleaning of Textile Machinery by Means of Compressed Air

About five years ago this subject was very thoroughly discussed in the pages of various textile papers and at conventions of Cotton Manufacturers, and many manufacturers installed apparatus. As far as we are aware, these have been very successful and the owners well satisfied with the results.

However in a number of mills equipped with air cleaning apparatus the best practice is not always being followed. It would pay those already equipped to investigate the gains made possible by better methods;—and those not equipped can profit by the progress of the last few years in their coming installations.

The advantages of compressed air cleaning may be summarized as follows:—

1. Necessary cleaning can be done more thoroughly and in considerably less time.
2. The necessary cleaning usually done while the machinery is in operation can be accomplished with absolutely no danger to the operative.
3. The manual labor of cleaning is greatly reduced. Better work and easier.
4. The saving in time required and the ability to clean machinery while in operation adds a very appreciable gain in production.
5. All departments can be kept so much more clean that the quality of the product is perceptibly improved and the risk of fire greatly reduced.
6. Reduced cost for cleaning accompanied by increased production is bound to reduce costs.

Field for Compressed Air Cleaning.

The two largest fields for pneumatic cleaning are undoubtedly in the spinning and weaving rooms. Carding and roving machinery and nappers, tentering machines, cloth drying machines, etc., while perhaps not offering the same returns as spinning and weaving, will show greatly improved results.

Apparatus Required.

Five years ago pressures as high as 75 and 80 lbs. were freely used, but 30 lbs. is sufficient and more economical.

The air compressor should be provided with an aftercooler which should be large enough to keep the temperature of the compressed air lower than that of the room. Thus the air for cleaning is absolutely dry and free from troublesome water or oil.

There is no better nozzle for air cleaning service than that recommended five years ago. The small tip limits the amount of air to that absolutely necessary to remove the lint or dirt from the machinery surfaces and allow it to drop to the floor.

The long tip on this nozzle enables the operative to reach all the parts of the machinery conveniently. It uses about one-quarter as much air as the large nozzle, and only discharges the air intermittently as it is required.

Practice has positively demonstrated the importance of using the lightest possible hose.

The most popular sizes in well-equipped mills are today ½" and ⅜", the latter prevailing in popularity and on account of its lower cost its greater durability.

Ordinary garden hose or commercial air hose will not do.

A special closely woven cotton fabric is used outside of the hose. On account of its smooth hard surface it is not so easily caught or torn by projections to which it is exposed in use. This cotton covering alone will outlast the life of ordinary bare hose.

When the cover finally becomes unfit for use, it may be cut up into shorter pieces about two feet long, known as leaders. These when coupled on to the end of a full length further increase the life by assuming the wear and tear that naturally comes close to the coupling at the valve end.

In air service even the small leaks are expensive and annoying. Screw couplings are unfit to use on hose which is being frequently coupled and uncoupled on account of the wear and tear and danger of cross-threading.

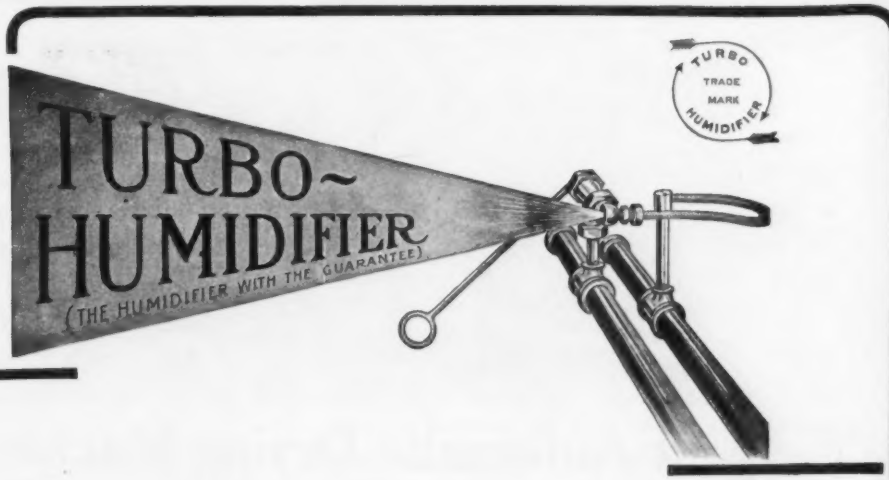
A "quick-hitch" coupling of some accepted type is therefore absolutely essential for air cleaning, not only on account of the increased facility of frequent coupling and uncoupling, but also because the "quick-hitch" couplings, being equipped with expanding gaskets, become absolutely tight as soon as the pressure is applied.

To prevent the opening of the valves and consequent waste of air by irresponsible help, a special valve on which the stem is protected by a shield should be used. This stem should fit a special key, which may be attached by a chain to the coupling end of the hose. The cleaning operator becomes the only person who can open the valve.

A sufficient number of valves and outlets should be installed to enable the operative to reach every machine in the room without the use of excessively long hose.

Mills already equipped with any type of hose or nozzles can conveniently make the change from the old type equipment by replacing the male coupling end by a nipple screwed into a quick-hitch coupling.

The G. M. Parks Company, Fitchburg, Massachusetts



It Saves $333.33⅓ Every Month

We have always claimed that Cotton Mills should put in Humidifiers of some kind, not only for the benefit of the operatives, but for the benefit of the stockholders because humidifiers increase dividends.

Of course, we mean a good humidifier which is a good investment no matter how you look at it.

The Turbo Humidifier

(The Humidifier with the Guarantee)

is the one we know most about and that is why we are able to guarantee that it will pay you.

It won't pay us to sell it to you if it doesn't pay you to buy it.

One superintendent of a New England Cotton Mill says that his $3,000 Humidifier and Air-Cleaning Equipment has paid for itself in nine months.

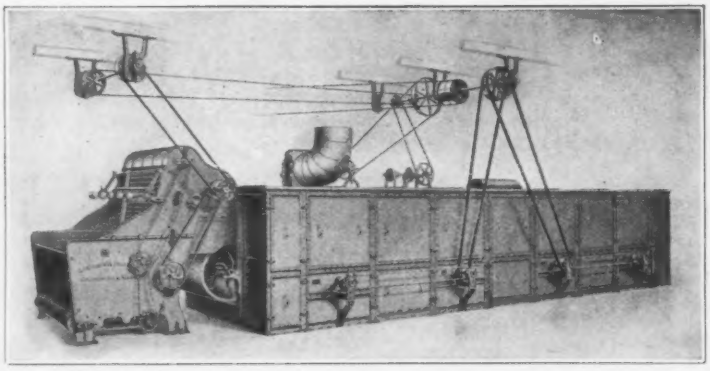
This is an economy you should have in your mill.

Shall we send an engineer to show you how this can be effected? Your request places you under no obligation whatever. A catalog will be sent in advance if desired.

The G. M. Parks Company

Fitchburg, Mass.

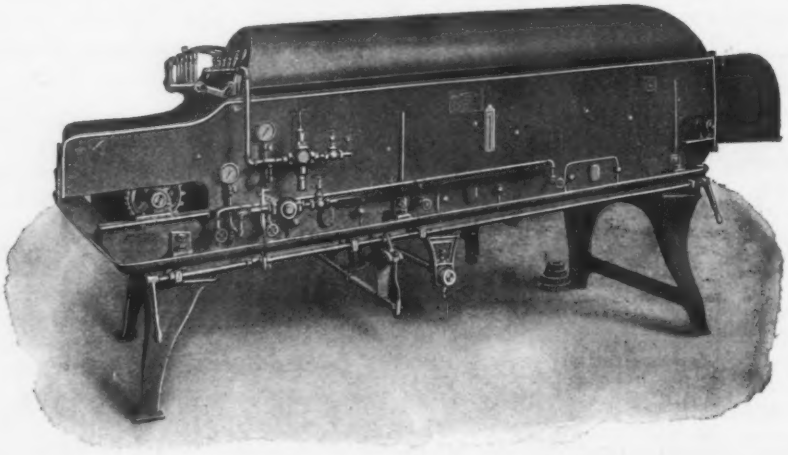
Southern Office, 200 Commercial Bank Building, Charlotte, N. C. **J. S. COTHRAN, Mgr.**



Sargent Automatic Drying Machines

For Drying Wool, Cotton, Hair, Silk, Flax

Containing exclusive features which permit greatest economy in operation. Ball Bearing Fans. Improved principle air circulation. Specially designed Feeders Automatic Apron Adjusting Device



The Yarn Conditioning Machine

The most effective and systematic method of setting twist
Eliminates Kinky Yarn difficulties

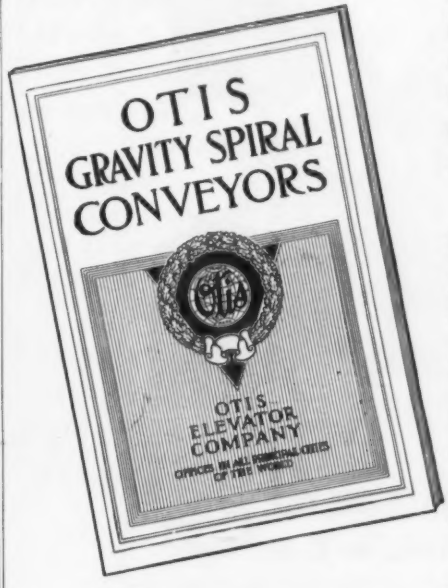
Wool Washers, Wool Dusters and Openers
Burr Pickers, Automatic Feeds for Cotton and Wool
Complete Carbonizing Plants

C. G. Sargent's Sons Corp., Graniteville, Mass.

If it were a personal card

A card comes to your desk accompanied by an introduction from many concerns of national reputation. You grant a hearing. You feel convinced that the bearer of a message so highly endorsed must have something to say worth your hearing.

In a way this advertisement is like such a card. Only it is the request for a reading and not the hearing about an equipment used and endorsed by nearly 400 concerns, a reading of how this equipment is saving thousands of good dollars annually on the operating expenses of these many different businesses.



Unlike and better than the card is this advertisement in that it asks you to hear no sales talk. Its aim is simply to put all the facts before you and let you decide for yourself upon the merits of the equipment for your business and plant. It does not even desire any of your business time. You can read and digest the valuable book which the coupon brings in the quiet and spare moments at your home.

Open the door behind which may be big savings for you. Open it this minute. Send the coupon

OTIS ELEVATOR COMPANY

Eleventh Ave. and Twenth-Sixth St., N. Y.

Offices in all Principal Cities of the World

Dept. 20
Otis Elevator Company, New York
Please send copy of your new book to

Name .....
Firm .....
Address .....
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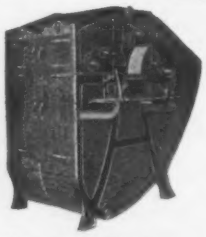


The Hunter

NO. 10
FULLING
MILL

DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES

BELT DRIVE

ROPE DRIVE

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

Textile Power Requirements

Met by

Westinghouse Electric Service

Textile Motor Starters

Direct Current Motors for Textile Service

Individual Drive Induction Motors

Four Frame Two Frame Group Drive Induction Motors

Lamps

WESTINGHOUSE ELECTRIC SERVICE Solves your power problems.

Repair Shops in Textile Districts

Service Engineering Department in Textile Districts

Power Layouts for Textile Mills

Generators — for — All classes of Service

Switchboards

Steam Turbines of all types

Condensers and Stokers.

Send for information on our latest textile motor
Ask for Textile Quarterly No. 9

Westinghouse Electric & Mfg. Co.

EAST PITTSBURGH, PA.

BOSTON
Boston Safe Deposit and Trust Building

NEW YORK
165 Broadway

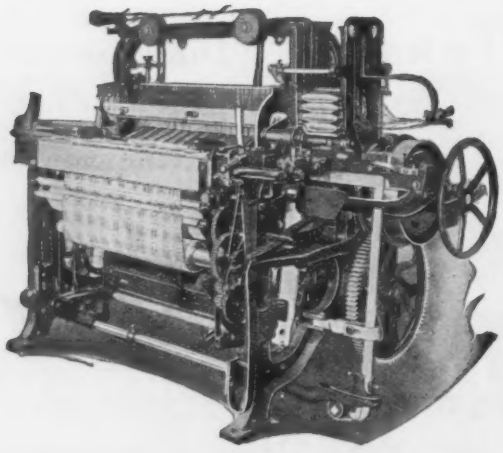
PHILADELPHIA
North American Building

CHARLOTTE
American Building

ATLANTA: Candler Building

137

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

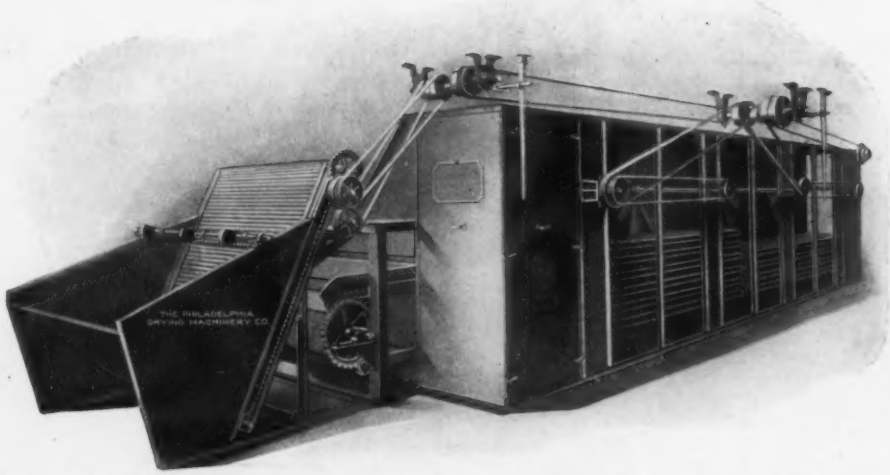
WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

"HURRICANE"

Fire-Proof Dryers

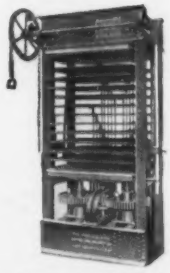


Automatic Stock Dryer with Self Feed and Patented Sectional Continuous Conveyor. STEEL Construction and ASBESTOS Insulation.

Dryers for Yarn, Knit Goods, Slubbing, Rags, etc.

Write for Catalogs

Complete Equipments for Dyeing, Bleaching, Carbonizing, Scouring



Power, Screw and Hydraulic PRESSES

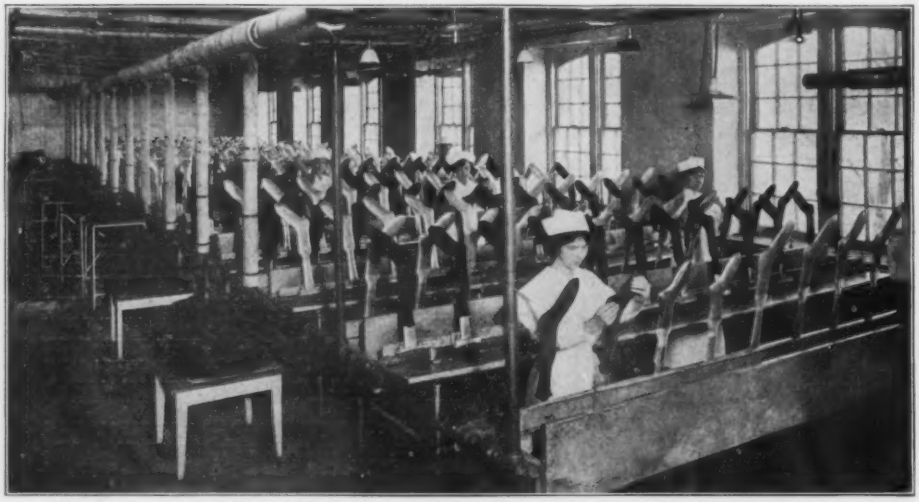
Automatic Dryer for Yarn, Slubbing, etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works: 6721 Germantown Ave., Phila., Pa, Boston Office: 53 State Street

"Paramount" (Trade-Mark Registered)

Drying and Shaping Forms



This equipment is using exhaust steam at atmospheric pressure

COMPARE WITH CONDITIONS IN YOUR BOARDING ROOM

Saves Labor, Power, Steam and Seconds. Forms are Made to Suit Your Styles

YOU CAN SECURE THIS EQUIPMENT WITHOUT CAPITAL OUTLAY

Infringement Warning: This apparatus is protected by U.S. Letters-Patent No. 1,114,966, dated October 27, 1914, owned by Paramount Hosiery Form Drying Co. Infringers are being vigorously prosecuted. You are hereby warned that any unlicensed manufacture, sale or use of this apparatus will be at the peril of the manufacturer, seller or user.

"One who, without license, manufactures, uses or sells an infringing device, is an infringer under the law."

For Particulars Write

Paramount Hosiery Form Drying Co.

337 W. Madison Street, Chicago, Illinois.

(Successors to The Paramount Metal Form Drying Company, Beaver Dam, Wis.)

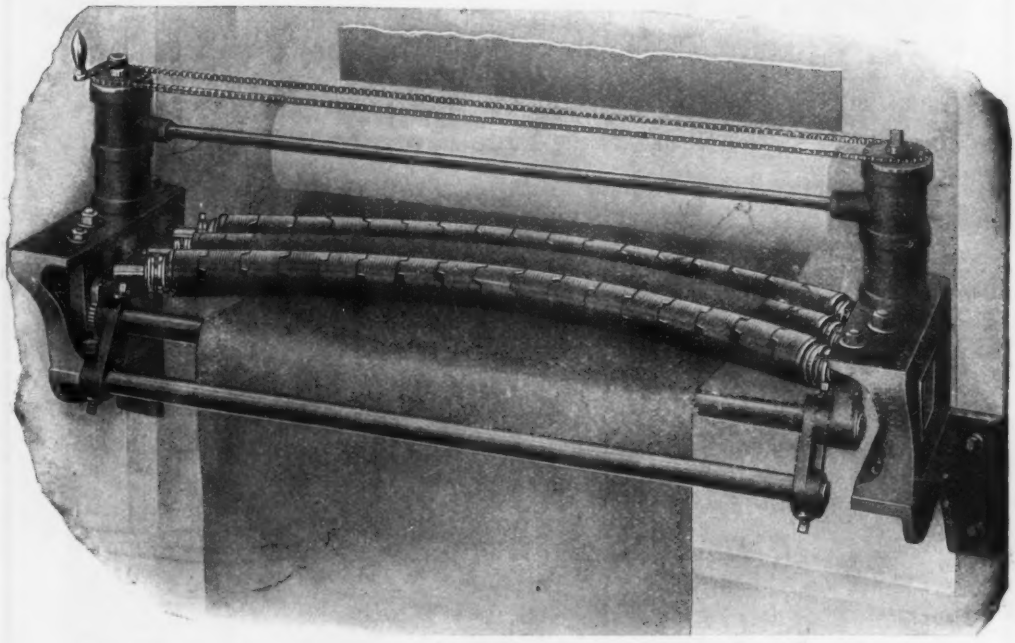
THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

Office and Works at READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander



Expander attached to Calender showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, and by others still pending, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

We solicit correspondence from those having new ideas for Calico Printing, Dyeing, or Bleaching Machinery, either patented, or capable of being patented, and which they wish developed or manufactured.

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

Paper Speeder Bobbins

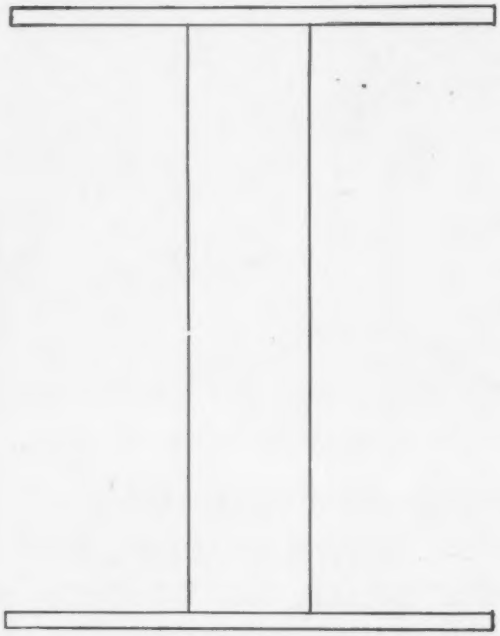
Will Neither Split, Chip, Swell, Shrink Nor Warp

These bobbins are far superior to speeders and slubbers made of wood. As they won't split or chip there are no rings or shields needed and that means reduced cost.

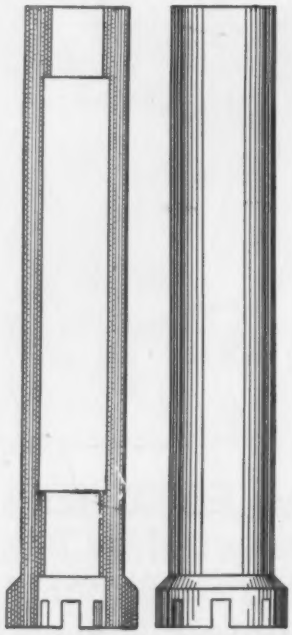
Not being effected by steam or other moisture they will not shrink, swell or warp and so are accurate in size at all times, and—

They Do Not Absorb Oil Which Insures Clean Yarn Free From Spots

Indorsed by 60 textile mills. Samples free on request.



Paper Spools In All Sizes



Paper Speeder Bobbin
Patents Pending

American Paper Bobbin Co., Inc.

670 Eddy Street - - Providence, R. I.
N. Y. Office, 13th St. and Boulevard, Long Island City, N. Y.

Paper Bobbins, Tubes, Spools, Horns and Megaphones

Dress A Belt At Our Expense

With Star Bar Belt Dressing

Send coupon for this large sample stick

Star Bar Belt Dressing gives belting that pliability and pulley grip so essential for high efficiency. It is the best dressing in stick form for quickly stopping belt slippage, decidedly economical, easily and quickly applied to the belt while in motion—no shut-down necessary.

Try out Star Bar Belt Dressing at our expense. Fill in the coupon for large half pound sample. No string to this offer—all that we ask for Star Bar is a fair trial. Send the coupon today.

The Graton & Knight Mfg. Co.

Oak Leather Tanners and Belt Makers

WORCESTER, MASS., U. S. A.

Branches in Principal Cities

Mail me Free Star Bar Sample

The Graton & Knight Mfg. Co., Worcester, Mass. T.W.R. 10-15

Name .....

Address .....

Name of Company .....

Position .....

Starch

SIZING IS ONE OF THE MOST IMPORTANT OPERATIONS IN THE MANUFACTURE OF COTTON GOODS. GOOD WEAVING DEPENDS ON GOOD SIZING. It is therefore very important for a mill to use the kind of starch for sizing which will produce the best results on the particular class of goods being manufactured.

For years we have been making a scientific study of the requirements of textile industry and as the result of our investigations, coupled with practical work in the mills, we now manufacture special starches adapted to every requirement of sizing warps and finishing cotton goods.

We are prepared to study the requirements of your mill and supply you with starch which will produce the best results on the kind of goods you are making, and also will produce these results economically, giving you the best value for the money invested.

We have experienced scientific men to investigate your problems. Let us show you how to improve your sizing process and obtain results.

Corn Products Refining Company

17 Battery Place, New York, N. Y.

Starch

A new publication of interest only to Textile Men connected with the transmission of power

"A Chain of Evidence"
Number 13

Sent free upon request to any of our offices

MORSE CHAIN COMPANY, Ithaca, N. Y.

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MINNEAPOLIS, Strong-Scott Manufacturing Co. ... 413 Third Street, S.
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Gentlemen:

Please send me a copy of your special textile publication No. 13, "A Chain of Evidence."

Name .....

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LANE

Canvas Mill Trucks
Baskets and Boxes

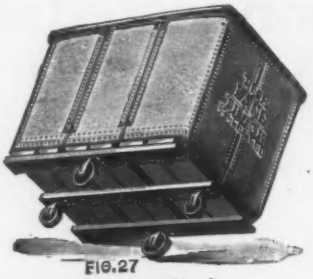


FIG. 27
The Lane Truck.
Mounted on Stationary Frame, Thread-guard Casters, as shown, or on Swivel Casters, if desired.

Altho' Withstanding the *Roughest Handling*

ARE THEMSELVES

Absolutely *Without Roughness.*

Thus They Reduce:

Cost, Waste, Damage

And They Are Light in Weight, Too

A STYLE FOR EVERY USE

W. T. LANE & BRO., Mfrs.

POUGHKEEPSIE, N. Y.

Every Ounce of Duxbak Belting is an Ounce of the Strongest Leather Fibre

treated by a process that makes it proof against moisture of all kinds, and increases its resistance to wear and strain.

DUXBAK BELTING has superior qualities no matter how you look at it. From the viewpoint of economy it lasts so much longer than ordinary belting that it pays well to use it. Considering power delivery, its non-stretch and non-shrink features make uniform arc of contact on pulleys possible, preventing slip and variable output of mine or mill, *and that positive output is what most mills are anxious about now-a-days.* Whenever a moisture-proof belt is needed, try a Duxbak and you'll appreciate its value as a help to production.

Send for our Booklet "Experience"—which shows many large drives and Lenix Installations—and try one Duxbak in a difficult place.

DUXBAK BELTING
TRADE MARK

Chas. A. Schieren Company
ESTABLISHED 1868

Tanners
Belt Manufacturers
21 Ferry St., New York

CHICAGO: 128 W. Kinzie St.
BOSTON: 641 and 643 Atlantic Ave.
PHILADELPHIA: 226 No. Third Street
PETERSBURGH, Va.: 122 Shore Street
PITTSBURG: 337 Second Ave.
DENVER: 1752 Arapahoe St.
SEATTLE, Wash.: 620 Fourth Avenue
NEW ORLEANS: 402 Canal Street

The Texas Chas. A. Schieren Co., Inc., 106 South Market Street DALLAS, Texas.

Awarded Gold Medal of Honor at Panama-Pacific International Exposition

Let us have peace

in our factories, shops and power houses

When metal-to-metal gears start war on each other, as indicated by tooth faces grinding away, bad vibration and that ear-splitting racket which aggravates attendants and operatives, and impairs their usefulness:—

Substitute New Process Noiseless Pinions for the noisy metal ones and you restore the peaceful hum of contented industry.

The permanent quiet of New Process Pinions is positive proof of efficient transmission, smooth power delivery and protection to gears and machinery.

Ask for and read our book:

"Noiseless Gear Driving"

N.P.R.H. ©

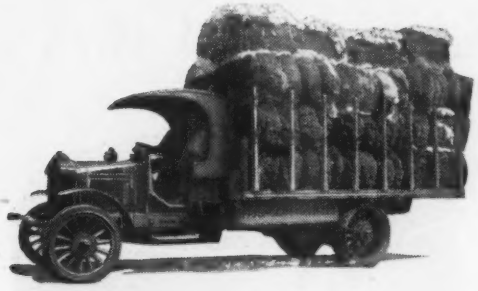
NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

NEW PROCESS GEAR CORPORATION

SYRACUSE, N. Y.

Canadian Agents: Robert Gardner & Son, Ltd., Montreal 119

Pierce-Arrow Motor Trucks *in the* Textile Trade



For the rapid and economical transportation of both raw materials and finished product, Pierce-Arrow 5-ton and 2-ton worm gear motor trucks have already a well-established reputation in the textile trade.

It is worth bearing in mind that the worm gear drive, particularly advantageous in textile service due to its extreme reliability and absolute cleanliness, was first introduced in this country by the Pierce-Arrow Motor Car Company. This construction is now very generally imitated, but no other American worm gear motor truck embodies the valuable results of years of experience under actual working conditions in many different kinds of service. If the advantages of worm gear drive appeal to you, it will surely be wise to purchase a truck which has long since passed the experimental stage.

If you will advise us exactly what your service requirements are, we can probably put you in touch with some textile operator who has found the Pierce-Arrow motor truck a satisfactory solution of a transportation problem similar to your own. The names of representative Pierce-Arrow truck owners in the textile trade follow:

The Worm-Gear

All Pierce-Arrow Trucks are equipped with the worm-gear drive, which is a positive guarantee of effective service under the most difficult conditions.

The Goodall Worsted Co., Sanford, Me.; Silk Finishing Company of America, New York City; Somerville Mfg. Company, Somerville, Conn.; Winslow Bros. & Smith, Norwood, Mass.; Rhode Island Processing Co., Coventry, R. I.; The Wanskuck Co., Providence, R. I.; Mansfield Bleachery, Providence, R. I.; High Rock Knitting Co., Troy, N. Y.; American Woolen Co., Boston, Mass.; Boston Woven Hose & Rubber Co., Boston, Mass.; Hoosac Cotton Mills, Boston, Mass.

The Pierce-Arrow Motor Car Co.

BUFFALO, NEW YORK

WATSON, LAIDLAW & CO. LD.

DUNDAS ST. SOUTH, GLASGOW

PATENT WATER-DRIVEN

HYDRO-EXTRACTOR

Underdriven Baskets

24 in. Diameter to 48 in.

Suspended Baskets

24 in. Diameter to 84 in.

Retain the benefit of self-balancing with entire absence of belts and gearing. No working parts requiring lubrication except spindle, which only requires a little grease once or twice a year. Can be placed anywhere regardless of power or moisture.

ABSOLUTELY SAFE

CALL OR ADDRESS

W. J. WAYTE, INCORPORATED

ONE LIBERTY STREET, NEW YORK

Pacific Coast Agents, BOURRET-KIRKWOOD COMPANY, Seattle, Wash.

EVERY DARK CORNER COSTS YOU MONEY

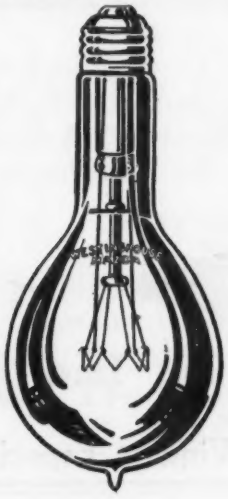
It may be a corner where your workmen can't see enough to get the maximum production.

Or it may be a corner where some day a workman will, for lack of sufficient light, run into a moving mechanism with disastrous results.

Or it may be a corner where dirt and refuse accumulate unseen to increase your fire risk and make your plant unsanitary.

No matter which, every dark corner is expensive, it pays to have good light.

Our booklet on Industrial Lighting shows how to light every corner. Send for it.



WESTINGHOUSE MAZDA

The Lamp for Industrial Lighting

Westinghouse Lamp Company

Atlanta	Dallas	Philadelphia
Baltimore	Denver	Pittsburgh
Boston	Detroit	Portland
Buffalo	Kansas City	St. Louis
Butte	Los Angeles	Salt Lake City
Chicago	Milwaukee	San Francisco
Cincinnati	New Orleans	Seattle
Cleveland	New York	Syracuse

Export Sales Dept., 165 Broadway, New York City

Rotary Dyeing and Washing Machine

CYLINDER CONSTRUCTED WITH 2 OR 3 COMPARTMENTS

This new type of machine has proven a great success. The cylinder is built of all wood or non-corrosive metal, according to kind of work intended for.

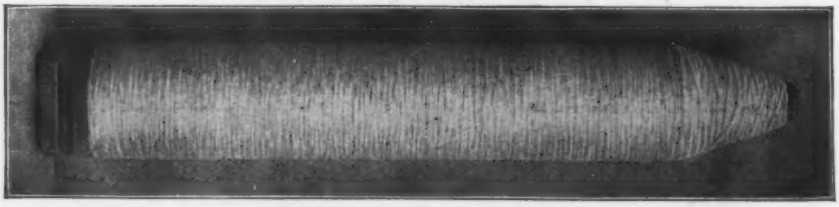
All types of Dyeing and Finishing Machines for Hosiery.

SMITH DRUM & COMPANY

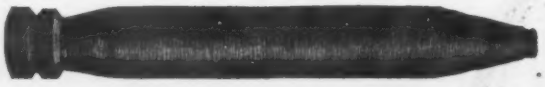
"Builders of The Best"

Southern Agent
H. G. MAYER, Realty Bldg., Charlotte, N. C.

PHILADELPHIA, PA.



SHUTTLE bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of Duck, Upholsteries, Tapestries, Asbestos, Ratana, or any kind of fancy yarns for automatic or other looms.



OSWALD LEVER CO., Inc.

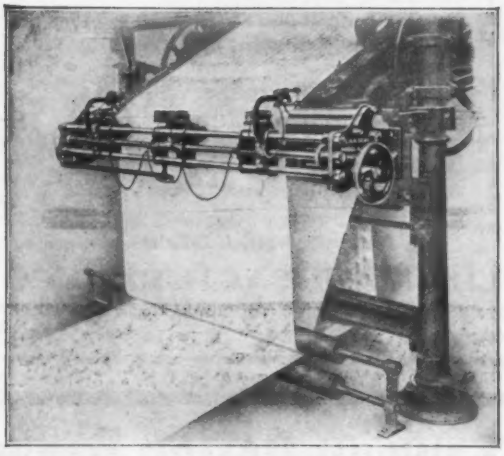
13th and Cumberland Sts., Philadelphia, Pa.

Manufacturers of Textile Machinery—Winders Especially

Automatic Electric

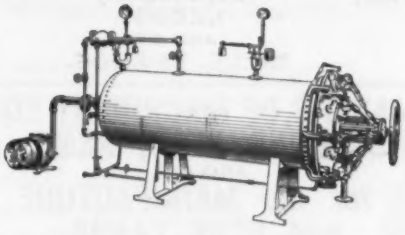
CLOTH FEEDERS

Over 1800 Running



For TENTERS, straight and swinging, CALENDERS, Etc.

100% to 200% Investment



DRY and WET DECATING MACHINERY
for WORSTEDS or WOOLENS

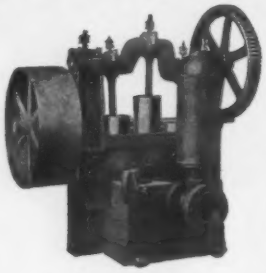
We build these and other machines in the United States from German patterns and we can make prompt deliveries

L. H. A. SCHWARTZ & CO.

40 Central St., Boston, Mass.

GOULDS PUMPS
FOR EVERY SERVICE

For Circulating Liquids—For Humidifier Service
For Feeding Boilers—For Private Water Supply

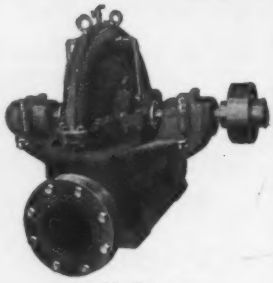


Goulds Fig. 957
Triplex Pump

and for all other pumping services for Textile Mills, Bleacheries and Dyehouses there is a Goulds Pump that will give you economical, efficient and reliable operation.

We will send you on request, a complete set of bulletins describing and illustrating our entire line of Triplex, Centrifugal, Air and Vacuum and Deep Well Pumps.

Write Our Nearest Office



Goulds Fig. 3030
Double Suction Centrifugal Pump

THE GOULDS MANUFACTURING COMPANY
Main Office and Works, SENECA FALLS, NEW YORK
Branch Houses, Boston, New York, Houston
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FAIRBAIRN LAWSON COMBE BARBOUR LTD.

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MAKERS OF MACHINERY FOR
PREPARING AND SPINNING FLAX, HEMP, TOW AND JUTE,
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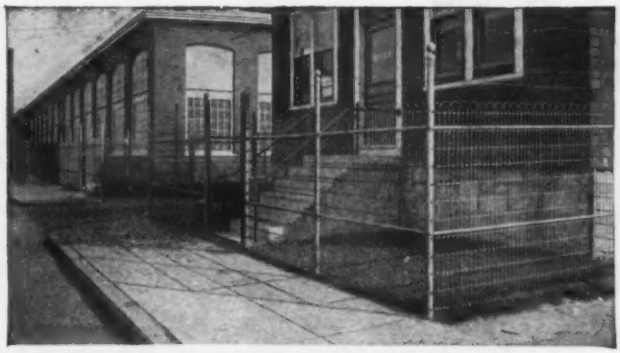
MACHINERY for the MANUFACTURE of TWINES and ROPE YARNS.

SOLE MAKERS OF
The Patent Centrifugal Flyer Cop Dry Spinning Frame
For Spinning Cops on the Bare Spindle.

ALSO MAKERS OF
ENGINEERS' GENERAL TOOLS for RAILWAY and ORDNANCE PURPOSES, &c., STEAM ENGINES, GROOVED ROPE PULLEYS, SHAFTING, &c.

COMPLETE PLANS AND ESTIMATES FOR SPINNING AND WEAVING MILLS SUPPLIED.

A Fence for Factory Buildings



must be substantial. And it should be neat and attractive. When you go to the expense of enclosing your plant you do not want to do the job over again in a year or two. The line of

"EXCELSIOR" TRADE MARK RUST PROOF

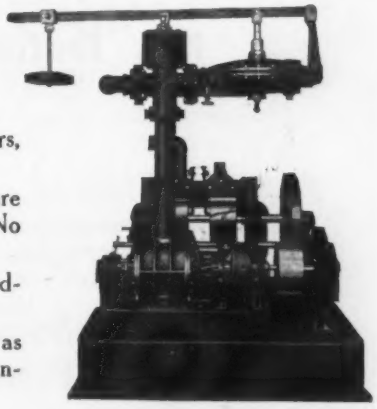
fences presents a great variety in the substantial kinds of fence **for Factories, Recreation Grounds, Playgrounds, Public Parks, Large Estates, Cemeteries and Public Buildings.**

Excelsior Rust Proof Fences are made of heavy wires and the heavy galvanizing prevents rust. The wires are clamped together at every crossing with patent clamps, so that they cannot be sprung or twisted out of place. Excelsior Rust Proof Fences are most economical because they last for many years.

We also build Excelsior Iron Fences. Special designs on request. *Send for Catalogue L.*

WRIGHT WIRE COMPANY - - - WORCESTER, MASS.

Kemp Automatic Gas System



Furnishes most efficient and economical method of utilizing city gas, either manufactured or natural, for such industrial purposes, as singeing, heating calenders, tentering machines, etc.

All air and gas mixing is done at machine, the mixture conducted through one pipe to place of consumption. No air valves or bunsens used at burners.

Flame temperature under perfect control and can be adjusted to produce the quality of singe desired.

Capacity of singeing machine frequently increased as much as 50%. Definite results and gas saving guaranteed. Equipment furnished on approval.

Write for proposition

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ALBERT BIRCH, TEXTILE MECHANICIAN

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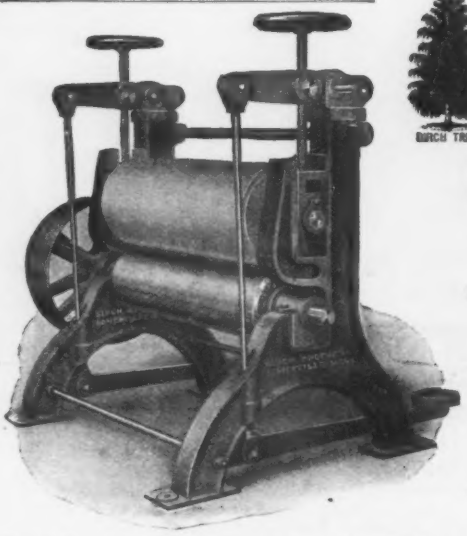

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Sewing Machine

Sent on trial most anywhere

Sews any fabric, thick or thin, wet or dry, without change

Fine Stitch or Coarse Stitch

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Also Makers of

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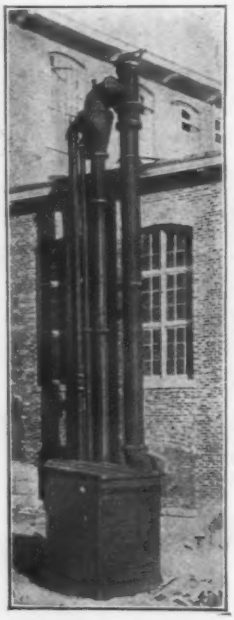

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Will Reduce Your Fuel Cost 15 to 30%

They are simple in design, require little condensing water, have no parts in condenser head to wear out or give trouble and cannot clog.

We build a complete line of

Steam Pumps **Vacuum Pumps**
Power Pumps **Centrifugal Pumps**

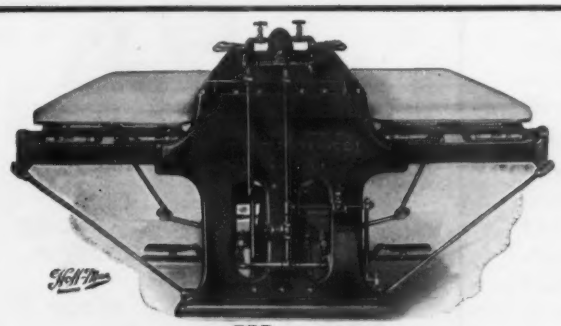
in large and small sizes for all classes of work. No matter what your requirements may be, we have just what you need.

Let us send you Catalog 228-74

Buffalo Steam Pump Co.

Buffalo, N. Y.

Branches in all Principal Cities



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Stephenson Underwear Mills of South Bend, Ind., express themselves in part as follows:

"We feel quite willing to express our confidence in your FFF Hoffman Press as we have two in constant use and

The Third just received and partly erected."

The Direct Application of Hot Dry Steam as Applied to Knit Goods by the Hoffman Principle Improves the Appearance

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will put your Trucking and transferring operations upon a profitable basis.

They also
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Thousands of users of our equipment are deriving these benefits.

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More Power—More Production Little Attention

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S. K. F. Self-Aligning Ball Bearings make possible a material saving of power, and, enable all types of textile machinery to be speeded up to their highest notch of efficiency.

Specify S. K. F. on your next machines—and write us about replacing your present bearings with S. K. F. Also send for Bulletin No. 14M.

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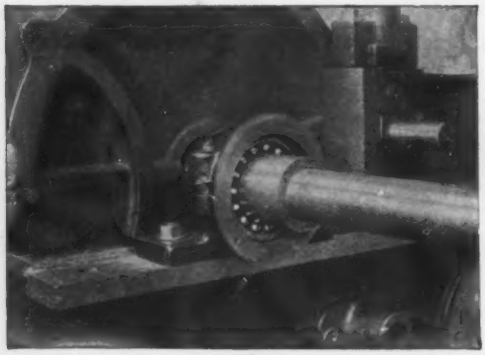

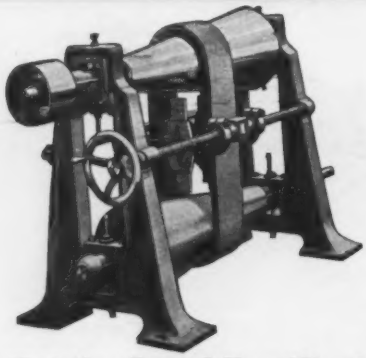

Get the Speed You Want

without stopping or slowing the machine. The operator can now do it quickly, and conveniently on any machine in your shop. Any speed from the slowest to the fastest can be obtained by

"M & W" Speed Changes

The Speed Changes are theoretically and mechanically correct—built in a most substantial manner and occupy very little room. The belts last longer and there is less loss of power when "M & W" Speed Changes are used.

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CRESSON-MORRIS COMPANY

Successors to Geo. V. Cresson Co.

Engineers—Founders—Machinists

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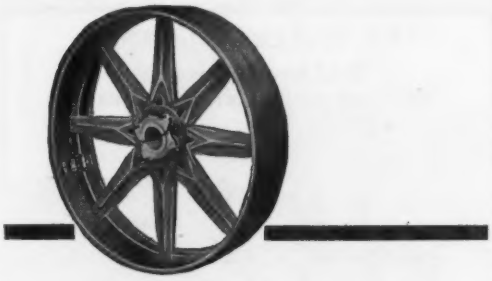

If you're a pulley user, you've seen many of these pulleys—. . . . . AMERICANS—in the shops you visit.

With over 2 1-4 million marketed and distributed in plants throughout this country their nation-wide popularity is clear—and it has twenty successful years of solid pulley service behind it.

People buy AMERICAN PULLEYS for their accuracy, their light weight, their strength, their permanency, their interchangeability on shafts of various diameters; they buy them for their power saving qualities—since they cut the air instead of fanning it (ask us for an interesting data sheet on this important subject), and they buy them because they're always easy to obtain anywhere in any desired size.

Permanent stocks of 50,000 American Steel-Split Pulleys in five warehouses supplement the additional thousands stocked by more than 200 dealers, and sizes run anywhere from 3 to 120 inches in diameter.

Send for catalog, price lists, or special information today.

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STEEL SPLIT PULLEY

A friend of mine—a pretty big western manufacturer — said to me a few months ago, "My overhead's too high. My shop needs vim and tuning up. How can I get it?"

Well, Standard Oil, Dodge Brothers, and the hundreds of other cases in which "old reliable Sells" had done that very thing answered his question conclusively.

Here, I explained to him, is a roller bearing with every desirable feature of the babbitted bearing—it's all split; it'll fit any standard hanger; it can be installed easily over night without moving hangers or shafting;—and then there is the positive guarantee of a 25% to 50% reduction in friction load.

"That's good; but how about the price—?" he asked.

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It was this suggestion that decided him. He uses "Sells" now, and he's glad.

I wish I could talk to you; give you an insight into the facts behind my enthusiasm.

However, Royersford engineers await your bidding. They're experts, and without obligation they'll tell you whether or not "Sells" Roller Bearings would be a good investment in your case.

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Royersford Foundry & Machine Co.
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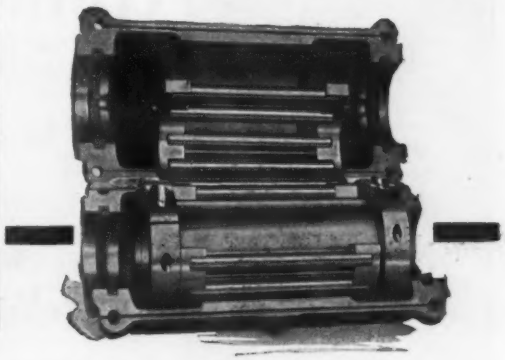
Babbitted Ring Oil Bearings—Shaft Hangers, Collars and Couplings—Punches and Dies—Punching and Shearing Machines—Sensitive Drill Presses—Drill Presses—Foot Presses—Grinding and Polishing Machines—Tumbling Barrels—"Rollerine"—the ball and roller bearing lubricant.

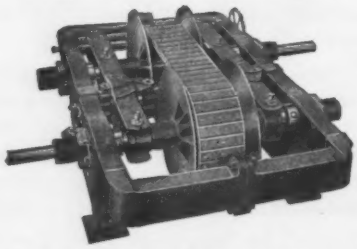
"Sells" Roller Bearings



Don't Limit the Output

of any machine by running it one speed all the time, simply because you have other machines driven from the same shaft.

Regulate Each Machine



Run it as fast or as slow as you require. Make each machine independent of the other. Let the operator control the speed.

Do It With

The Reeves Variable Speed Transmission

and thus increase your output and your income. Apply it to your Printing Machines, Tentering Machine, Dryers, Mangles, Washing Machines, etc.

Catalog "U" illustrates applications

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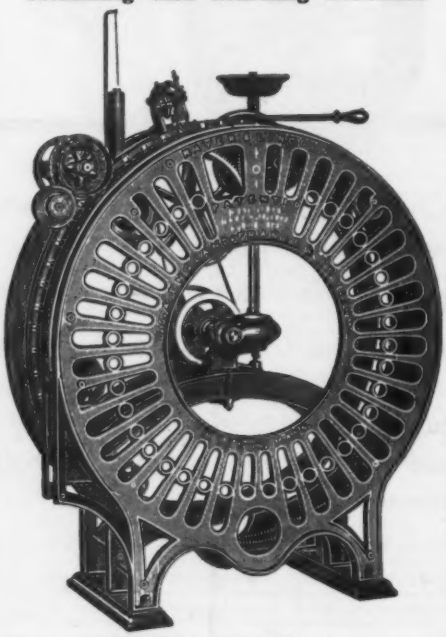
Rotary Sewing
Trimming and Marking Machine



HOW IT SAVES.

It makes a fine seam at the rate of 2000 stitches a minute.

It trims the margin of the cloth outside the seam evenly and nicely, so that the whole piece can be sheared from one end to the other. The margin never curls up.

It leaves no marks on "backs" or "back grays."

It marks the cloth automatically.

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RELIANCE CLOTH HANGING MACHINE

For shrinking woolen, worsted and cotton goods; drying oilcloth, or waterproof cloth, and curing rubberized cloth.

Can be attached to any machine or operated separately

In use by the United States Quartermaster department for shrinking uniform cloth.

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Such an investigation in your own plant—a careful consideration of the centrifugals for extracting liquids from solids or for separating liquids of different densities—is something that holds the possibility of paying large returns on the time it would take.

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Take the first step now. Write us what processes you have where extraction or separation of any kind is necessary—no matter on how small or large a scale. This does not obligate you in any way of course.

Schaum & Uhlinger CENTRIFUGALS

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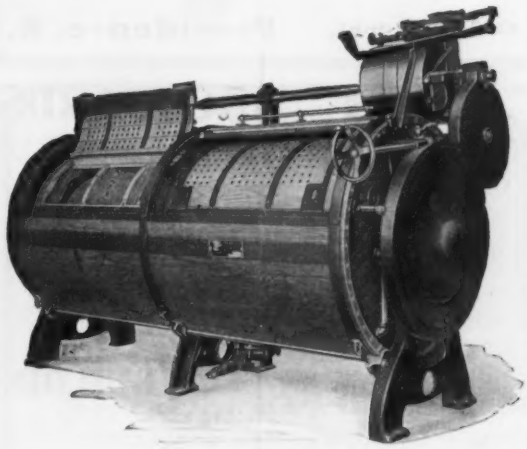

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Supplies the most up-to-date method of fulling woolens. Gives unequalled results with economy in time and labor. Superior construction to any other type of fulling machinery, assures long life.

Made in any length up to 120 inches and with any desired number of compartments.

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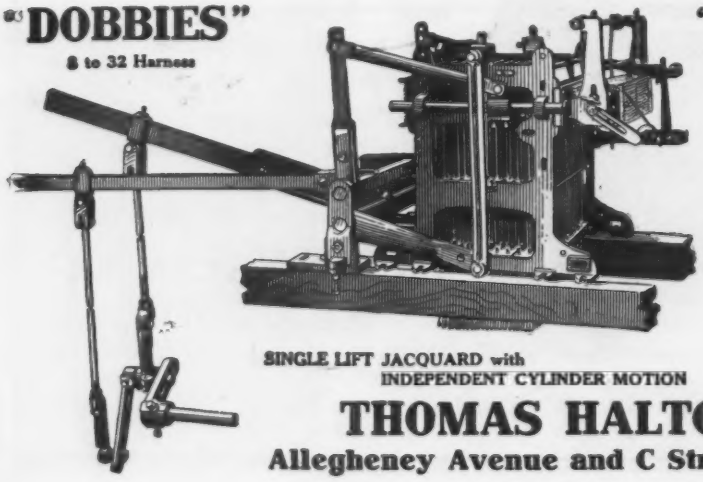

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Has Been Adopted by the Representative Manufacturers of this Country.
The only System adopted in the Textile Schools. Write for booklet "T" on Humidification.
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For the

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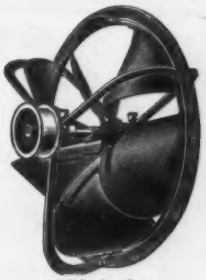

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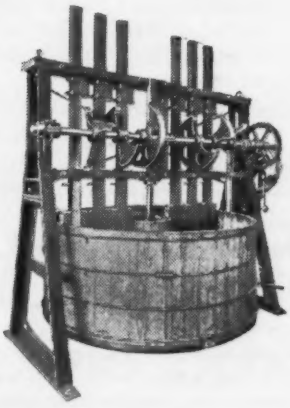

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Positively uniform treatment,
Goods easily accessible,
No dragging of the goods,
No clatter of Wheels or Gearing,
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Available area for goods in one washing, 31 sq. feet,

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If You are Interested in

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Write us to send you an estimate of cost of installing an equipment as well as the economies in labor and steam that can be made.

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Made in sizes from ⅛" up to 6"

Ask your dealer for POWELL VALVES or write us.

THE WM POWELL CO.
DEPENDABLE ENGINEERING SPECIALTIES
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Entwistle Expansion Comb is used extensively on other makes of warpers, as well as on our own. As it is patented it can be secured from us only.

The Open Iron Frame makes it easy to clean and to watch expansion, avoiding damage to springs. The guide wire is in contact with the upper spring making the Comb much stiffer.

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Includes:

Ball Warpers	Doubling Machines
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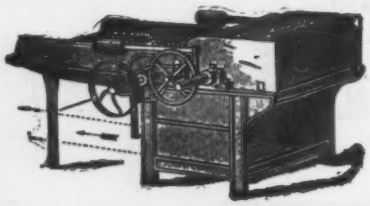

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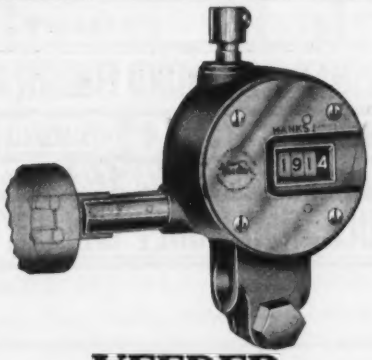

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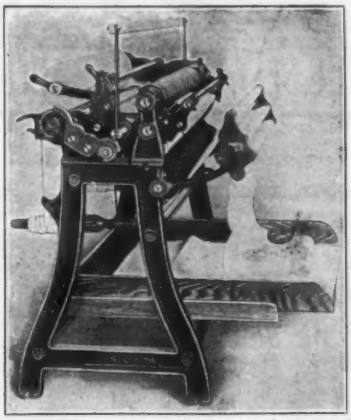

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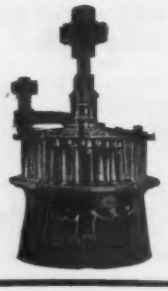

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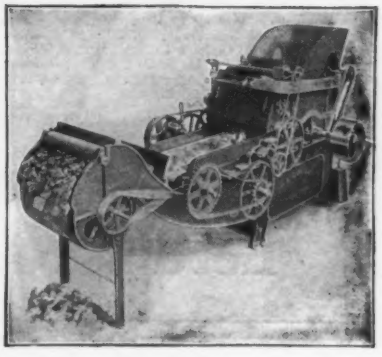

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Drying by Means of Air and Steam, *Hausbrand*	2 00
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Science of Knitting, *Tomplins*	3 00
Silk Throwing and Waste Silk Spinning, *Rayner*	2 50
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TEXTILE WORLD RECORD

Published on the 12th of each month by

LORD & NAGLE COMPANY

FRANK L. NAGLE, President. HENRY G. LORD, Treasurer.

SAMUEL S. DALE, Editor

Publication and Editorial Office

144 Congress Street, Boston

119 South Fourth Street, Philadelphia. 120 Liberty Street, New York.

537 South Dearborn Street, Chicago.

Entered at the Boston Post Office as Second Class Mail Matter

Subscription Rates.

Textile World Record, in the United States and Mexico	$2.00 per year
To Canada, on account of extra Postage	2.50 per year
To other **Foreign Countries** (postage paid)	3.00 per year
Textile World Record and the **Official American Textile Directory** (Traveler's Edition)	3.00 per year
To Foreign Countries with Directory (postage paid)	4.00 per year
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BADISCHE COMPANY

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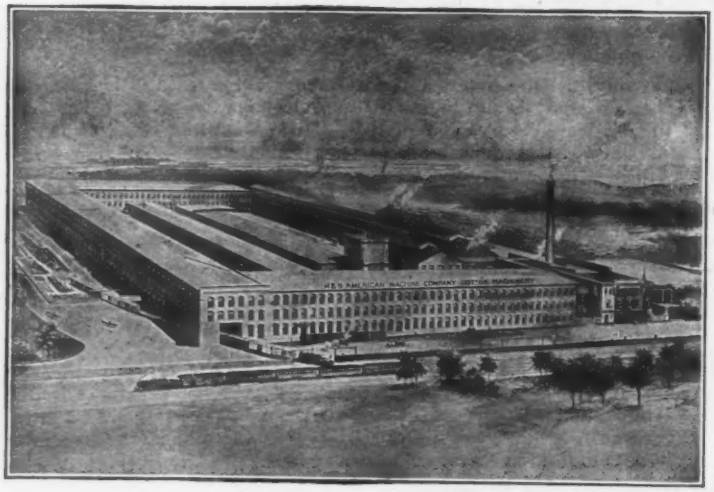
COTTON MACHINERY



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TEXTILE WORLD RECORD

OCTOBER, 1915

Monthly Comment.

The Component Material of Chief Value

A recent decision by the U. S. Board of General Appraisers in a case (G. A. 38,355) involving the importation of card cloth of wool and flax by the Howard Bros. Mfg. Co. sheds a bright light on the method of determining the component material of chief value under the present and preceding tariff laws. The case involved a protest on an importation under the Payne tariff of 1909, but the Underwood bill provides in a number of paragraphs for the determination of the component material of chief value, so that the lessons to be drawn from this decision and the accompanying testimony are of present day application. The merchandise in question was returned by a local appraiser as in chief value of wool and dutiable at the high rates provided in the Payne bill. The importers filed a protest, which the Board of General Appraisers has sustained, reversing the local appraiser and holding that the goods are dutiable at the lower rate provided for cloths in which the component material of chief value is flax. The protesting importers submitted the deposition of George D. Hardman, of Bury, England, the manufacturer of the cloth, and this testimony, on which the reversal of the local appraisers was based, makes the decision of special interest.

In order to make the case as clear as possible to our readers we obtained a sample of the card cloth, taken from the shipment on which the protest was made, and found by analysis the finished construction to be as follows:

Weight per square yard, 15.4 ounces, consisting of 58.7 per cent. of linen warp and 41.3 per cent. of wool filling.

Warp, 65 threads single 12.3s linen yarn per inch.

Filling, 33.3 picks 1.79 run woolen yarn per inch.

Weave, single warp and double filling. The filling is woven 1 face 1 back. The face filling is stitched with a 5-leaf filling satin weave, Fig. 101, Handbook of Weaves; the back weave, with a 5-leaf warp satin, Fig. 104. This weave construction brings the filling to the surface on both face and back, while the linen yarn is buried in the center of the fabric.

Finish. The cloth is well felted, concealing the twill effect of the satin weave.

The yarn sizes given above are for the yarn as it lies in the cloth without allowance for take-up, shrinkage in length or loss of weight in finishing.

The published decision of the Board of General Appraisers, including the testimony of the English manufacturer, is as follows:

The merchandise in question, invoiced as card cloth, is a fabric of wool and flax, returned by the appraiser as in chief value of wool, and classified as a "cloth made wholly or in part of wool, not specially provided for in this section," under paragraph 378, act of 1909. It is claimed to be in chief value of flax and dutiable at the appropriate rate under paragraph 357.

The protestants took the deposition of George Denis Hardman, of Bury, Eng., by commission. He stated he was managing director of Thomas Hardman & Sons, Ltd., woolen manufacturers and finishers; that he was personally familiar with the four shipments named, invoiced by Thomas Hardman & Sons, Ltd., of Bury, Eng., to the Howard Bros. Manufacturing Co., of Worcester, Mass.;

that the materials used are flax yarn for the warp, and wool yarn for the weft; that it is woven in the loom by his firm; that the flax when entering the loom is in the shape of yarn; that the wool when entering the loom is in the shape of yarn. Mr. Hardman further said:

Int. 12. Take a piece of 200 yards of card cloth as a basis for your estimate, and state what proportion in weight is flax and what portion wool, used in the manufacture.

A. In a piece of 200 yards of card cloth, flax yarn used 252 pounds, wool 179 pounds.

Int. 13. In the months of December, 1912, January and February, 1913, what was the value of the wool and what was the value of the flax when these shipments were invoiced?

A. In the months of December, 1912, January and February, 1913, the net value of the flax was 9.44 pence per pound, the value of the wool 10.30 and 10.58 per pound.

That there is no variation in the four shipments as to the values of the flax yarns, in the wool the first three shipments 10.30, and the fourth shipment 10.58.

Int. 15. What is the component material of chief value in these four shipments of card cloth?

A. Flax.

To cross interrogatories he said he had been employed by Thomas Hardman & Sons for over 30 years; that in his position as managing director he overlooked personally the whole of the business. He further stated:

Cross Int. 5. Did you personally purchase the raw materials used in the fabrication of the card cloth shipped to Howard Bros. Manufacturing Co.?

A. The raw materials were purchased by my brother, Mr. H. B. Hardman, under my supervision and instructions.

The various wools blended together to produce the yarn for the manufacture of these card cloths were Peru, noils, and B. A. shanks. Also that the prices at which these materials were purchased were prices at which they are freely sold to any purchaser in wholesale quantities. Continuing:

Cross Int. 8. What is the condition of these wools when you purchase them, that is, are they washed or unwashed or scoured?

A. Unwashed.

Cross Int. 9. Are they the original fleeces as they come from the sheep?

A. No.

Cross Int. 10. Is it not a fact that portions of the fleeces have to be rejected in the sorting process, being of too coarse a quality and possibly having discolorations which render them unfit to enter into this class of fabric?

A. Quite so, but we do not buy this wool in the fleece.

Cross Int. 11. If the wools you purchase are in the raw condition, please state with respect to each variety of wool:

a. The cost of washing.
b. Percentage of loss by washing.
c. The cost of sorting.
d. Percentage of loss by sorting.
e. The cost of carding.
f. Percentage of loss by carding.
g. The cost of spinning.
h. Percentage of loss by spinning.

A. (a. b.) We do not wash the wool.
(c. d.) We do not sort it.
(e.) .340 per pound.
(g.) .370 per pound.
(f. h.) We only calculate our loss on both carding and spinning together, not separately. This loss is 2.303 pence per pound.

As to the number of the yarn used, he said:
Flax yarns, No. 12s single line marked C. C.
Wool yarns, 65s.

And as to condition of the linen yarn at time of purchase he said:

A. The yarn used in the fabrication of this cloth comes to us in bundles, made up of hanks, which, as previously stated, I did not personally purchase.

That the linen yarn was purchased in Belfast, Ireland; that the linen yarn in that condition is freely offered for sale to purchasers in wholesale quantities at the price he pays.

Cross Int. 16. State the percentage of loss in each of the operations to which the linen yarn is subjected from the time you purchase it until it is ready for the weaving process.

A. There is no loss in the operations up to the loom.

Cross Int. 17. State the cost of each of the above operations.

A. Winding 0.173d. Warping 0.275d. Drawing in 0.115d.

Samples of yarns in the condition when they are ready to be woven into the cloth were submitted. (Exhibits A & B).

Taking the testimony as a whole, and based upon the figures given by the witness for the protestants as representing the value of the component materials "in condition as found in the article," that is, the yarns, we find, on the weight of the evidence, that the cloth is in chief value of flax.

We therefore hold the merchandise dutiable at the appropriate rate under paragraph 357 according to the weight and count of threads, and sustain the protests.

That the U. S. Board of General Appraisers should accept Mr. Hardman's deposition as evidence warranting the overruling of the local appraiser illustrates the slipshod methods by which tariffs are framed and administered. The deposition is open to so many different constructions that it is difficult to criticize it, as criticism based on one construction could be met by the reply that Mr. Hardman meant something entirely different. In justice to that gentleman, however, it should be added that the questions submitted to him are far from clear and comprehensive. This might have been due to ignorance of the technical side of cloth manufacture, or to an attorney's desire to avoid placing too many facts before the Board. However that may be, here are a

few points that will have to be cleared up before passing on Mr. Hardman's deposition:

(a) Question 12 fails to state whether the weight required is of the flax in the raw state or in the form of yarn, while Mr. Hardman's reply gives the weight of flax yarn, but leaves one in doubt whether the weight is for raw wool or wool yarn.

(b) Question 13 and the reply are also ambiguous, there being nothing to indicate whether the values of the flax and wool are for raw stock, yarn or other manufactured product.

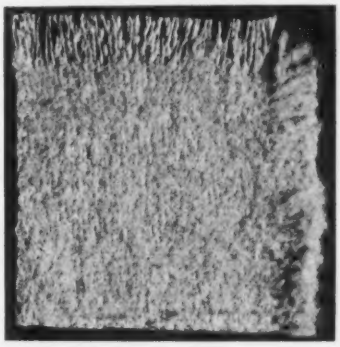
(c) Question 15 and the reply are meaningless because there is no explanation of the basis on which the values of the component materials are determined.

(d) Cross question 5 is apparently based on the assumption that the purchase price of the flax yarn and raw wool represents their value, but cross question 11, which follows, goes into the question of mill cost, thus confusing market value and mill cost, and making no reference to whether the appraised value should be based on one or the other or both.

(e) Cross question 11 calls for the cost of the various processes of converting the wool into yarn, but in his reply Mr. Hardman fails to state whether "per pound" refers to the weight of yarn or cloth. This is important because the proportions of flax and wool given in reply to question 12 are identical with the proportions found by analysis of the finished cloths:

	Hardman deposition		Analysis of cloth	
Flax	252 lbs.	58½%	13.8 grs.	58.7%
Wool	179 lbs.	41½%	9.7 grs.	41.3%
	431	100%	23.5	100%

There is no disputing the results of the analysis, so that, whether it was Mr. Hardman's intention or not, his statement of the proportionate weight of flax and wool agrees with the actual proportions in the finished goods. It is evident, however, that his cost figures were for the material in the form of spun yarn. In finishing fulled wool goods, the wool yarn always loses a considerable amount, probably 20 per cent. in such a fabric as this card cloth, while flax yarn shows but little if any change of weight during this process. It follows that a calculation, such as the one on which this decision of the Board of General Appraisers is apparently based, in which the proportionate values of the wool and flax are based on the finished weight and the cost or value per pound of yarn, would give a proportion as much too high for the flax as it is too low for wool. And



SAMPLE OF WOOL AND FLAX CARD CLOTH

the discrepancy is made still greater by basing the yarn value on the market price for the flax and on the mill cost for the wool. Furthermore basing the proportionate values of the component materials on the cost or value of the yarn is an absurdity because it includes the cost of manufacturing up to the weaving process and omits the cost of all the subsequent processes, in this case, weaving and finishing.

(f) The size given by Mr. Hardman for the flax yarn agrees with the analysis, but we are at a loss to understand the number, 65s, given to the woolen yarn. Assuming a loss of 20 per cent. in weight and a shrinkage of 32 per cent. in length by finishing, the spun size of the wool yarn would be 2.1 runs or 210 yards per ounce, a size that, so far as we can determine, has no equivalent expressed as 65s in any established system of numbering yarn.

(g) Cross question 16 shows that whatever may have been the basis for Mr. Hardman's proportionate weight, the questioner had in mind the weight of the yarn at the loom.

(h) The reply to cross question 17 is meaningless because it fails to state whether the figures express the cost per pound of yarn, per yard of warp or per yard of cloth.

On such testimony as this, conflicting, ambiguous and erroneous, and in which questioner and witness, separated physically by the Atlantic ocean, are still farther apart so far as an understanding of each other is concerned, the U. S. Board of General Appraisers gravely decides that

> Taking the testimony as a whole, and based upon the figures given by the witness for the protestants as representing the value of the component materials "in condition as found in the article," that is, the yarns, we find, on the weight of the evidence, that the cloth is in chief value of flax.

This card cloth case points to two defects in the tariff law and its administration. The first is the lack of expert knowledge of textile manufacturing on the part of the attorneys and judicial appraisers who investigate and pass on disputed assessments of duties. When such disputes as the one involved in this card cloth case arise, the Government should be represented by attorneys who are familiar not only with the methods of legal procedure, but also with the technical processes of manufacturing textiles.

The other defect is the presence of this "component material of chief value" provision in the tariff law. If Congress knew what it meant by the provision it should have explained it. nstead of that it leaves the administrative officers and the courts to carry out a provision that is utterly impossible of administration, and to involve themselves in a hopeless tangle of absurdities. It is only with the greatest difficulty that the Government can determine the value of goods in the actual condition in which they are imported. But this "component material" clause requires them to determine the value of raw and partly manufactured materials when purchased or manufactured months or years ago in different mills and different foreign countries. The "component material of chief value" provision should be cut out of the tariff law. Mixed goods should be classified by the proportionate weight of the component materials. There is no valid objection to classification by weight. The determining proportion can be fixed at more or less than 50 per cent. to suit the materials of which the fabric may be composed, and the rates adjusted accordingly. This would place the tariff on a basis that can be determined by the United States Customs Appraisers as accurately as it is possible to measure and weigh textile materials.

—:—

Wool, Tops and Yarn

The imports of wool, tops and wool yarn for the thirteen months ending July, 1915, are reported by the Bureau of Foreign and Domestic Commerce as follows:

Clothing and Combing Wool, Free		
July, 1914 .....lbs.	13,680,588	$4,720,650
August	11,700,980	3,089,974
September	9,096,205	2,315,488
October	7,543,479	1,844,032
November	2,909,260	629,416
December	962,219	194,810
January, 1915	7,445,517	1,753,210
February	16,092,943	3,804,491
March	47,393,129	11,057,566
April	47,927,295	11,654,634
May	40,585,106	9,715,317
June	31,537,182	5,973,152
July	26,370,166	5,985,462
Carpet Wool, Free		
July, 1914 .....lbs.	6,150,565	$1,028,569
August	4,777,641	769,841
September	4,705,674	773,637
October	3,942,256	641,568
November	2,541,724	457,522
December	1,955,252	328,200
January, 1915	4,191,043	604,496
February	5,414,962	786,138
March	13,393,129	2,347,774
April	7,639,546	1,254,783
May	7,210,512	1,179,929
June	3,883,682	693,018
July	4,137,826	739,560
Mohair, 15 per cent. ad val.		
July, 1914 .....lbs.	309,250	$101,930
August	238,490	93,848
September	407,651	141,040
October	470,995	169,545
November	443,466	171,401
December	308,911	115,648
January, 1915	298,906	90,553
February	481,013	133,920
March	945,083	268,781
April	267,851	69,350
May	322,532	87,853
June	807,415	189,557
July	1,263,242	316,700
Tops, 8 per cent. ad val.		
July, 1914 .....lbs.	1,064,988	$578,152
August	396,230	191,774

September	563,447	270,546
October	433,688	192,899
November	193,878	79,848
December	75,468	27,615
January, 1915	105,833	39,174
February	72,168	35,016
March	73,285	39,556
April	78,771	36,552
May	166,735	72,588
June	144,826	98,777
July	32,171	11,917

Yarn, 18 per cent. ad val.

July, 1914 .....lbs.	755,956	$544,974
August	307,825	223,713
September	277,355	186,235
October	374,420	247,750
November	83,234	66,712
December	142,255	97,064
January, 1915	121,463	90,628
February	117,985	84,065
March	84,766	66,992
April	30,664	24,724
May	83,964	63,403
June	36,298	22,811
July	26,602	22,682

"Pure Wool" and Official Ignorance

The use of the authority and prestige of the United States Government by appointees in the government service to create public opinion in favor of this, that or the other public policy has become a crying evil. The latest offender in this respect is Thomas Carrick Burke, of Portland, Ore., whose second-hand opinions on so-called "pure textile" legislation have recently been spread before the public. The attention which his statements have received and the influence they may have exerted in shaping public opinion were not due to the fact that they were made by Thomas Carrick Burke. That gentleman has no national reputation as an investigator of technical problems. Nor were they due to the fact that in this case Mr. Burke was right and gave convincing reasons for the faith that was in him. His opinions were rubbish that had been repeatedly exposed as such, and the only reason Mr. Burke gave for his assertions was that a Portland tailor had given him the information. The only reason for the attention received and the influence exerted was that the opinions were published as coming from the U. S. Collector of Portland, Oregon. Here are a few extracts from his statement as published in the Oregon Daily Journal of September 21:

"For several years I made frequent drives through the country districts of eastern Oregon, and often passed bands of sheep on the range.

"By contact I became interested in sheep men and often listened sympathetically to their tales of woe about taking the tariff off wool and letting pauper wool, so to speak, come in free to lower the price.

"Something seemed wrong, certainly, if the sheep men in that climate and on a free range couldn't lay it over the wool growers anywhere on earth, and I said so. All I could give them at that time, however, was sympathy; but since then I have discovered the nigger in the woodpile, and I want to point him out to my old friends, the sheep men of eastern Oregon.

"It came about by my asking a tailor here in Portland to build me a suit from cloth made wholly from eastern Oregon wool.

"'There is no such cloth,' said he, so I began to examine into the reason why.

"Let me say this as a starter: The world supply of wool never has been and never will be equal to the demand. All the wool produced in the world is less than one-third of the material that goes into the manufacture of stuff that is sold as woolen. Think that over.

"'What is the other two-thirds, and where does it come from?' he was asked. That is the question,' he replied, 'for that is the stuff that is knocking the sheep industry. It brings the same price as wool when it is retailed as woolen goods, because the manufacturers are not required to show what per cent., if any, of the fleece wool enters into the stuff they sell. It costs little or nothing for it is what the rag pickers get by pillaging the alleys and ash piles and hospital wards, and that is thrown out of closets and basements as old rags and cast off clothing in every city, village and farm house in the United States. And when garments, made either wholly or in part from this stuff are worn out, as they always are, in a very short time, they are gathered again in the same way by the rag scavengers and ground up again in a perpetual round of damning the reputation of the State for its shoddy woolens, and the sheep men, who are up against this stuff, knowing only that something is eating into them, are led off into conversations on the tariff.

"'And the solution?' the collector was asked.

"'Establish a mill in Oregon,' said he, 'that will put out nothing but goods made entirely from the fleece wool of Oregon sheep, and it would have to run overtime from the start. In two years it would put Oregon on the map of the world, and it would take a large part of the wool clip of the State to supply it. More than that, it would pay the sheep men of the State much more for their wool than came clean from their scouring plants, and at that, it could not begin to supply the market. Other mills of the same kind would follow and on the unoccupied lands of Oregon ten sheep would be made to grow where only one grew before.

"'The direct way to reach this is to pass a federal law regulating what we wear, as the long de-

layed and bitterly fought pure food law regulates now what we eat; a law requiring manufacturers to brand their fabrics so that the ultimate consumer may know just what he is buying.

"'This would not stop the use of rags, and those who want rags for what they are worth could still have them; but those who want good, durable clothes made from clean fleece wool would not have to take shoddy masquerading as the real thing.

"'They can rest assured, too, that under such a law, clean scoured fleece wool from the eastern Oregon range would advance in price to not less than $1 a pound at the mills and that it would stay around that figure, where it belongs.'"

For years the humbug of such talk as that by Collector Burke has been repeatedly exposed. It has been demonstrated that such a law, requiring goods to be labeled to show the proportions of each material, is not desirable because much of the cloth made from so-called shoddy is superior to much that is made from new wool. And it has been repeatedly demonstrated that even if such a law were desirable, it would be impossible to put it into effect, because there is no way to distinguish new wool from shoddy when the two are mixed and made into cloth; and, consequently, that any attempt to enforce such legislation would open wide the door to misrepresentation and fraud in the sale of wool goods. Repeatedly has it been demonstrated that the only practical remedy for such misrepresentation and fraud is a harmonious system of State and Federal statutes forbidding misrepresentation and fraud in the sale of not only wool goods, but all kinds of goods, under penalty of fine and imprisonment.

It is perhaps not surprising that the old "pure wool" errors have not been eradicated, for an error once lodged firmly in the public mind is long-lived. But it is surprising that men occupying official stations in which it is no part of their duty to instruct the public, should go out of their way, as Collector Burke of Portland, Oregon, has, to repeat the old "pure wool" error by which so many wool growers and other good people have been misled for the past sixteen years.

There are 6,000 silk and velvet ribbon looms in the Basel district. All others in Switzerland are negligible.

The Textile Trade of the Philippines

The following statistics of Philippine textile imports and exports for the year ending June, 1915, compared with the figures for the twelve months ending June, 1914, have been published by the Bureau of Insular Affairs:

Imports for Twelve Months Ending June

	1914	1915
Cotton, and manufactures:		
United States	$6,020,916	$5,244,179
United Kingdom	1,343,712	729,633
Other countries	780,687	494,767
Cloths	$8,145,315	$6,468,579
Thread:		
United States	385,373	392,477
Other countries	51,433	34,660
	$436,806	427,137
Wearing apparel:		
United States	389,568	399,645
Germany	309,616	58,713
Japan	573,056	691,078
Spain	266,614	72,164
Other countries	100,718	61,738
	$1,639,572	$1,283,338
Yarn:		
United States	45	492
United Kingdom	270,650	198,842
Japan	516,344	427,382
Other countries	226,783	96,655
	$1,013,822	$723,371
All other:		
United States	$362,924	$380,615
United Kingdom	238,071	138,196
Other countries	357,334	248,011
	$958,329	766,822

Exports for Twelve Months Ending June

Hemp (Manila):		
United States	$10,672,199	$9,700,767
United Kingdom	7,910,112	6,413,769
Japan	2,099,739	2,164,788
Other countries	1,693,056	1,190,318
	$22,375,106	$19,469,642
Hemp, knotted:		
United States	$9,652	.....
France	105,781	28,131
Italy	643,054	150,087
Switzerland	34,891	25,648
Other countries	59,382	20,201
	$852,733	$224,067
Maguey:		
United States	$41,648	$66,802
United Kingdom	330,135	156,577
Other countries	161,174	135,872
	$532,957	$359,251

European Notes

RESTRICTING THE USE OF NAPHTHA FOR CLEANING

The growing scarcity of petrol in Germany is indicated by a recent notice of the Prussian Minister of War addressed to the Association of Dyers and Chemical Cleansing Works, forbidding the use of benzol for cleansing garments. This order, dated July 20, appears in a recent issue of the "Deutsche Faerber-Zietung:"

> The Minister of War has given consideration to the Association's letter of June 15, but in consequence of the prevailing scarcity of benzol and the extraordinary requirements of the army, is not able to release 300 tons of benzol per month for use in chemical cleansing establishments. He recommends the substitution of test benzine, tetachloride of carbon, water and soap. Only in special cases, for example the cleansing of materials for the army, is the Government able to grant permission to use benzol.

The "Deutsche Faerber-Zietung" commenting on this order, states the sale of heavy benzine has ceased as the manufacturers and dealers are not willing to do business at the maximum prices fixed by the Government and which have been extended to petroleum, heavy benzine, turpentine and similar products. This resulted in the application by the above named association for the release of benzol. Since the war began the association has presented twenty petitions to various officials asking for the release of benzine or benzol.

MAXIMUM WORKING TIME FOR TEXTILE MILLS

A law went into effect in Germany on August 12 limiting the working time of textile mills. The object of the new statute is evidently to distribute employment more uniformly throughout the country than would be possible if manufacturers were allowed to run their mills overtime to fill their orders that might be on the books. Owing to the war conditions many mills are idle, while others are running on short time. The law fixing a maximum working time provides that:

> Operatives in cotton, wool, shoddy, jute, hemp and flax mills must not work over 5 days per week. The daily working time must not exceed 10 hours. The Government is authorized to restrict the working time still further. Violations of this act shall be punished by a fine of 1500 marks ($375) or imprisonment for 3 months. The Imperial Chancellor is authorized to suspend the restriction.

PROTEST AGAINST THE USE OF THE ENGLISH YARD

The Chamber of Commerce at Plauen, Germany, has presented a petition to the national chamber asking that the sub-committee on independence from England be asked to adopt measures to secure the introduction of German weights and measures and the metric system of yarn numbering for sewing thread and cotton. The Plauen petition is of special interest as it shows how well established are English weights and measures, even in the domestic trade of Germany. While the petitioners are very much in earnest they evidently fear that Germany at the present time has enough unsettled problems on hand without adding to them the changing of the well established English weights and measures. The reference to France is incorrect. The attempt to establish the metric system for numbering cotton yarn in France failed in 1819, since which date the French have used a system based on the half-kilo. After giving an account of the efforts to make the metric system the textile standard for Germany, the petitioners say:

> Our Chamber in 1898 in connection with a memorial of the Chemnitz Association of Textile Manufacturers, made an effort to persuade the Saxon Government to secure the adoption of the metric system for yarn numbering in all industrial countries, including Great Britain, and furthermore, irrespective of the international aspects of the question, to further the compulsory introduction of the metric system of yarn numbering in the German Empire. The failure to secure the international unification of yarn numbering in spite of all these efforts resulted from the resistance offered by England. For some time, however, the metric system has been used in the worsted and carded woolen trades of Germany. In dealing with England these industries have continued to use English measures. There is, however, no reason why the German sewing thread and cotton spinning trades should continue to use the English system of yarn numbering in domestic business and the change in this respect is very much to be desired. In this connection it should be borne in mind that the introduction of the metric system in other branches of the textile industry as well as in cotton spinning would bring with it many difficulties and particularly in the export trade the continual reductions to the English system would be burdensome at first. Nevertheless these difficulties are not so serious as to

make the introduction of the metric system into the cotton industry impossible. The introduction of German measures for sewing thread would be relatively easy. It is certainly a great inconvenience that even the sewing thread made in Germany should be marked with English yards when sold to the consumer. In our judgment the German meter mark could be substituted without special difficulty. We make no reference now to the experience in connection with the international aspects of the question. We contend, however, that the English marks should be discarded in the international trade of the German Empire. That this is possible without taking into consideration the international aspects of the question is proved by the fact that France has already introduced the metric system into the cotton industry. As a matter of course the solution of this important question depends, first of all upon the cooperation of the associations in the cotton spinning and weaving trades. If we are correctly informed, this question has already engaged the attention of the German cotton spinning trade. It must be admitted that the present time, when so many industrial problems are pressing for solution, is not particularly favorable for an immediate and thoroughgoing solution of the weights and measures question. On the other hand, when we consider what a vigorous campaign is being carried on in all parts of Germany to eradicate English manners, customs and habits, it seems as if the right course was to solve the weights and measures question iu the way we have suggested. Incidentally it may be mentioned that this would lead to the elimination of English expressions from the new German tariff.

THE UNION OF GOVERNMENT AND INDUSTRY

The numerous and voluminous orders that have been issued by the German Government for the purpose of regulating the commandeering, manufacture and sale of textile materials, supply incidentally a striking illustration of one charcteristic of the German system, namely, the intimate and efficient union of Government and industry. Extending from general features to the smallest details of manufacturing and selling cotton, wool, silk, hemp, linen and jute products, these official orders disclose from beginning to end, not only the iron hand of the War Department, but also the accurate and businesslike method of the textile manufacturer in dealing with industrial and trade problems. There is no official blundering over technical details, no exhibition of superficial knowledge that leaves the trade in a muddle of uncertainty. The orders are definite, comprehensive and technically accurate, showing that the central authority had issued them in harmonious cooperation with the manufacturers and merchants who were to obey them. Regardless of our opinions regarding the right or wrong of the war, there can be no dispute over the proposition that the Germans are setting an example of efficient administration which can be studied and imitated with profit by the Government, manufacturers and merchants of the United States. With harmonious and intelligent cooperation between our Government and the textile trade, the technical muddling of the textile schedules, which was a feature of the tariff revisions of 1909, 1911, 1912 and 1913, would be impossible. With such cooperation between industry and officialdom, the dyestuff question would now be well on the way to solution.

A GERMAN ASSOCIATION FOR IMPORTING COTTON

At the urgent request of German and Austrian cotton manufacturers an association for importing cotton has been incorporated at Bremen with a capital of 4,000,000 marks ($1,000,000). The object is to provide a financially responsible corporation which can guarantee the payment for cotton that may be ordered for Austrian and German Mills. It is significant that such a corporation should be created regardless of the fact that cotton has been made contraband by the Allies. The "Wochenberichte der Leipziger Monatschrift fuer Textil-Industrie" gives the following particulars regarding the enterprise:

An Association for importing cotton was organized on August 24 in the Bremen Chamber of Commerce. This action was taken in consequence of the general request by the cotton trade that the importation of cotton into Germany should be centralized. The purpose of the organization is to obtain definite purchasing orders for cotton from dealers and spinners in Germany and Austria and then to give American exporters an unconditional order for the entire quantity required. At the request of the cotton interests, banks connected with the cotton import trade undertook the organization of the cotton buying company. The capital, amounting to 4,000,000 marks ($1,000,000), has been provided by the Diskonto-Gesellschaft, the Deutschen Bank, the Dresdner Bank and the Deutsche National Bank. The Board of Directors consists of representatives of the above named banks, the Bremen cotton trade and the German and Austrian-Hungarian spinners associations. The president, Herr Lohmann, of the Bremen Chamber of Commerce, is chairman of

the board of directors. Herr Cramer, president of the Bremen Cotton Exchange and F. Urbig, of the Diskonto-Gesellschaft Bank, have been appointed vice-presidents. Erich Fabarius is business manager. The plans for this corporation were formed before the British Government made cotton contraband. The decision to go ahead with the enterprise regardless of this action by the British Government indicates that the promotors of the buying company expect to import large quantities of cotton or are reckoning on the possibility that England may not be able to keep cotton on the contraband list when the American cotton growers make strong appeals to their government to relieve the blockade.

AUSTRIANS MIXING WOOD FIBER WITH JUTE

The "Reichenberger Zeitung" reports that the scarcity of jute in Austria and Germany has led to the mixing of wood fiber with jute in order to provide a substitute for the latter:

The present war has made it impossible for Germany and Austria to obtain raw jute and has created a serious scarcity of raw hemp. In seeking a substitute for these fibers it has been found that wood fiber provides a cheap and easily worked textile material. Guido Rotter, a textile manufacturer in Ober-Hohenelbe, has secured a patent for a process by which wood fiber can be spun with jute, hemp or any other kind of waste on the same machines now used for spinning jute and hemp. The process is suited for the production of coarse yarn containing 25 to 50 per cent. of wood fiber. It has been tested in practice and already a large quantity of sacks have been manufactured from the new material.

Work in Woolen and Worsted Mills

The National Association of Wool Manufacturers has issued the following report of active and idle machinery in woolen and worsted mills on September 1, 1915:

Per Cent. of Idle Machinery to Total Reported

Looms	Reported 1914	Dec. 1	Sept. 1
Looms, about 50"	40,351	27.2	26.
Looms, 50" or less	11,594	30.	17.3
Looms, carpet	4,102	48.9	38.3
Woolen cards, sets	3,307	30.	22.8
Worsted combs	2,052	41.3	21.
Woolen spindles	1,036,279	31.6	22.5
Worsted spindles	1,836,267	33.	16.9

Looms	Reported 1915	Sept. 1	Jne. 1	Mar. 1
Looms, about 50"	40,351	26.7	30.4	32.7
Looms, 50" or less	11,594	31.2	25.9	32.
Looms, carpet	4,102	24.	24.5	45.8
Woolen cards, sets	3,307	15.5	17.7	22.7
Worsted combs	2,025	14.	30.	29.4
Woolen spindles	1,036,279	14.2	17.4	21.5
Worsted spindles	1,836,267	17.	39.6	33.

THE WOOL GOODS MARKET

With the approaching winter season and the evident continuation of the war during the winter the demand for overcoatings, uniform cloths and blankets for the Allies has set in with renewed vigor, with the result that several large contracts have recently been placed. There is probably more woolen machinery running on such work at the present time than in any period since the beginning of the war. Other contracts are reported as pending. As the exigency of the situation demands prompt action it is more than probable that they will be closed without loss of time. This work has been made more attractive to our manufacturers by the payment of higher prices and by the large quantities involved. With only one set of yarns in one color, mills are in a position to run entirely on one fabric to full capacity for several months, thus adding largely to their production. This work is having a very beneficial influence on the market. The mills are in a more favorable position than for many years. Some mills that have made goods for the armies have been complimented by the foreign governments for the excellency of their fabrics and their promptness in deliveries according to contract.

The situation in the mill district is quite animated, with many mills running nights with two shifts of help, while others are running only during the evening hours and as the conditions may require, in order to get out the goods on time. As it is imperative that army fabrics shall be delivered at the dates agreed upon they are getting the precedence over goods for civilian purposes. This has caused some complaint from certain clothing firms where their deliveries have been delayed.

While some mills are oversold there are others not so overrun with business, the continued demand, however, will bring the mills all the business necessary to keep them fully occupied to full capacity for the season. Those not having had orders in satisfactory quantities are principally worsted mills which do not make fabrics for army purposes.

The enormous amounts of shoddy and medium grades of wool required for the production of army goods have caused considerable advances in prices for those commodities, which are also largely used in the manufacture of many carded woolen fabrics sold to the clothing trade. This, with the steadily advancing prices for dyestuffs, has caused such fabrics to be advanced considerably in price.

Another favorable influence on the market is the growing demand for fabrics for civilian wear for export to Europe and South America, as well as Canada. Until recently

EXPORTS AND IMPORTS OF RAW WOOL, YARN AND WASTE.

Lbs. in units of one million. Value in units of $100.000.

Year Ending June 30.	Exports.		Imports.					
	Wool.		Wool.		Shoddy, Noils, etc.		Yarn.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
1890	.231	.335	106.3	152.6	5.0	20.5	3.5	19.9
1891	.291	.394	129.3	182.4	1.2	4.3	2.0	11.9
1892	.202	.306	148.7	196.9	.3	.9	1.8	7.5
1893	.091	.148	172.4	210.6	.3	1.1	1.2	6.9
1894	.520	.906	55.2	61.1	.1	.5	.5	3.6
1895	4.289	4.844	192.8	229.9	14.1	19.8	2.4	11.7
1896	6.945	8.559	228.4	315.0	18.7	26.5	2.0	10.5
1897	5.271	6.199	366.6	567.5	49.9	69.3	1.8	9.6
1898	.121	.180	132.8	167.8	5.3	6.9	.3	1.9
1899	1.683	1.878	76.7	83.2	.3	.7	.2	1.1
1900	2.200	3.872	155.9	202.6	.4	.9	.2	1.3
1901	.200	.240	104.0	125.2	.6	1.8	.2	1.5
1902	.123	.133	166.2	177.1	.2	.6	.4	1.9
1903	.518	.718	177.1	221.5	.3	.9	.3	1.9
1904	.319	.371	173.7	248.1	.2	.5	.1	1.1
1905	.123	.150	249.1	462.2	.2	.8	1	1.2
1906	.192	.290	201.7	390.7	1.2	4.3	.2	1.6
1907	.214	.488	205.8	415.3	.6	2.7	.1	1.5
1908	.182	.421	125.9	236.6	1.2	1 2	.2	1.5
1909	.028	.047	266.4	451.7	.5	1.4	.3	2.3
1910	.047	.010	263.9	512.2	.	..	..	..
1911	..	..	137.6	232.2	..	..	..	..
1912	..	..	193.4	33· 8	..	.	..	..
1913	..	..	195.3	355 8	..	..	..	..
1914	..	..	247.6	531.9	..	..	..	..
1915	..	..	308.	682.4	..	..	..	..

EXPORTS AND IMPORTS OF MANUFACTURED WOOLENS.

Value in units of $100,000.

Year Ending June 30.	Exports—Value.							Imports—Value.							
	Carpets.	Dress Goods.	Flannels and Blankets.	Apparel.	Rags.	Other.	Total.	Carpets.	Cloths.	Dress Goods.	Shawls.	Clothing.	Knit Goods.	Other.	Total.
1890	.067	..	.409	3.179	..	.719	4.374	7.5	161.4	242.0	10.1	18.4	19 8	66.2	525.4
1891	.184	..	.265	4.240	..	.502	5.191	13.7	120.3	182.4	7.2	18.6	12.5	39.7	394.2
1892	.093	..	.244	2.689	..	.649	3.675	12.9	127.6	164.7	3.5	14.8	11.6	12.1	347.4
1893	.115	..	.242	2.224	..	.679	3.260	15.8	151.2	164.8	2.8	11.7	14.1	12.0	372.4
1894	2.500	..	.387	3.172	..	1.685	7.744	9.6	67.6	85.8	1.6	8.6	10.0	7.2	190.8
1895	1.610	..	.498	3.161	..	1.432	6.701	13.6	163.0	144.0	2.0	10.0	9.4	11.8	353.5
1896	2.252	..	.370	3.653	..	2.860	9.135	8.9	218.9	199.3	4.5	13.0	25.4	27.4	497.4
1897	1.895	..	.573	2.858	..	3.150	9.476	7.8	170.1	107.9	4.6	9.8	25.3	27.0	412.4
1898	1.612	.414	.474	4.290	.	4.074	10.89	17.9	39.6	60.4	.4	7.6	3.9	9.6	139.5
1899	.811	.169	.427	5.388	..	3.679	10.47	17.6	39.1	59.1	.5	8.3	6.3	5.6	136.5
1900	1.150	.244	1.002	5.654	..	4.485	12.54	27.5	51.3	58.7	.8	9.9	5.0	6.3	159.1
1901	1.051	.082	1.230	8.060	..	5.005	15.43	27.0	39.6	53.7	.8	11.7	4.1	5.3	142.4
1902	.867	.070	.883	8.521	..	4.780	15.12	34.4	48.0	64.0	.5	13.3	5.7	5.2	171.4
1903	.579	.074	.481	12.908	..	3.187	17.22	37.5	48.6	75.1	.5	19.2	6.7	4.7	195.
1904	.509	.078	.105	14.577	..	3.663	19.87	27.9	41.5	82.0	.5	13.0	5.1	5.2	175.2
1905	.646	.155	.815	16.244	..	2.488	20.35	28.7	39.7	86.1	.6	13.7	2.2	5.4	178.2
1906	.573	.164	.724	16.184	..	3.549	21.19	46.4	51.6	100.5	·5	16.3	2.7	7.	225.9
1907	.577	.056	.549	16.887	..	4.319	22.38	44.3	57.3	92.4	..	16.7	2.1	6.0	218.8
1908	630	.136	.350	17.478	..	3.981	22 19	27.9	48 6	92.2	.	16 2	.35	7.3	192 6
1909	.666	.138	.493	14.201	..	4.220	19.72	40.3	47.8	67.6	..	14.2	.6	6.8	177.3
1910	.571	.279	.690	15.551	..	6.600	23 69	45.9	64.2	93.7	..	18.1	.17	13.8	235.1
1911	..	..	..	14.594	..	8.429	22 93	38.1	51.4	62.6	..	22.7	..	10.8	185.6
1912	..	..	..	17.43	..	7 918	25 34	38.5	46.3	32.7	..	21.7	..	9.8	149.1
1913	..	..	..	24.60	9.23	10.99	44.83	48.9	48.9	33.2	..	21.6	..	10.5	163.2
1914	..	..	..	21 5	9.7	16.7	47.9	44 5	127.9	67.6	..	22.7	..	55.3	342.9
1915	..	..	.	91 1	13 8	168.2	273.1	29 4	102 6	73.2	..	18.0	..	43.0	297.9

this export business has been impossible at profitable prices. The situation is unprecedented and, being a result of the war, it will lasts and places mills in a position to sell to full capacity and at profitable prices.

The unusual demand for all kinds of

EXPORTS AND IMPORTS OF MANUFACTURED COTTONS.

Value in units of $100,000.

Year Ending June 30	Exports — Value.					Imports — Value.						
	Colored.	Uncolored.	Apparel.	Other.	Total.	Colored.	Uncolored.	Apparel.	Laces, etc.	Thread.	Knit Goods.	Other.	Total.
1890	29	55	2	14	100	33.7	1.3	3.4	114.5	9	71.5	65.8	299.2
1891	26	93	3	15	137	42.4	1.7	12	105.9	8.6	67.4	59.2	297.2
1892	25	87	4	16	132	45	1.4	12.6	112.5	6.6	58.3	46.7	283.1
1893	28	63	5	22	118	55.4	2.6	16.8	127.4	7.6	63.9	61.8	335.5
1894	38	76	5	24	143	33.8	1	16.6	80.2	3.3	43.6	45	223.5
1895	35	70	5	28	138	54.3	1.3	27.7	116.9	6.6	65.4	59.9	332
1896	34	95	7	32	168	49.2	1.8	26.8	108.8	8.7	61.9	67.1	324.3
1897	48	125	9	29	211	44	2.7	26.3	125.7	8.5	56	83	344.2
1898	41	92	9	25	167	53.1	1.2	10.5	117.7	6.9	40.3	43.9	273.6
1899	52	138	13	30	233	66.5	1.1	10.3	145.5	8.5	43.4	45.3	330.6
1900	48	132	16	37	233	81.6	3.6	12.4	192.1	21	47.2	55.3	413.2
1901	66	76	17	33	192	59.2	2.0	15.3	202.3	17.5	55.0	51.4	403.7
1902	74	185	20	34	313	69.3	.9	16.5	224.5	19.2	53.6	60.4	444.4
1903	84	169	26	30	309	90.1	1.5	22.5	251.1	24.2	61.6	75.6	524.6
1904	54	92	27	34	207	81.4	1.5	25.0	248.4	22.6	60.4	55.6	494.9
1905	73	339	34	35	496	77.9	1.5	23.8	259.1	22	61.5	43.2	409.7
1906	69	363	43	36	510	117.2	2.1	29.1	340.2	26	72.2	43.5	630.3
1907	75	156	47	35	293	127.2	2.8	37.7	397.5	35.8	86.7	39.4	727.1
1908	58	84	47	31	271	120.8	3 4	41.9	346.1	39.2	90.3	52.	688.7
1909	72	145	10	70	297	99.	2.9	27.2	313.7	33.1	69.2	45.	620.1
1910	85	113	57	41	296	84.	5.8	38.6	368.2	43.1	64.6	59 3	664.7
1911	105	138	71	77	391	83.3	4.7	39.8	359.2	42 1	41.7	69.5	640.3
1912	115	197	89	104	507	73.4	4.2	36.3	370.9	40.3	32.5	93.9	651.5
1913	126	180	110	62	478	72 3	4.3	42.8	357.7	44.5	30.9	55.4	660.6
1914	116	171	108	58	453	113.6	4.7	28.9	338.6	38.8	56.7	84.4	665.7
1915	163	122	595	83	663	68.9	3.9	11.7	208.0	33.3	41.5	69.5	462.0

EXPORTS AND IMPORTS OF RAW COTTON AND WASTE.

Lbs. in units of one million. Value in units of $100,000.

Year Ending June 30	Exports.									Imports.				
	Sea Island.		Other.		Total.			Cotton Waste		Raw Cotton.			Cotton Waste.	
	Lbs.	Value	Lbs.	Value.	Lbs.	Value.	Value. per lb.	Lbs.	Value.	Lbs.	Value.	Value per lb	Lbs.	Value.
1890	9	23	2462	2486	2471	2509	10.15	..	..	8.6	13.9	16.16	..	..
1891	14	31	2893	2876	2907	2907	10.00	..	..	20.9	38.2	13.49	..	..
1892	19	16	2926	2568	2945	2584	8.77	..	..	28.7	32.1	11.18	..	..
1893	8	17	2204	1870	2212	1887	8.53	..	..	43.4	46.9	10.80	1.9	.8
1894	14	29	2669	2080	2683	2109	7.82	..	..	27.7	30	10.83	2.7	.9
1895	15	24	3502	2021	3517	2049	5.82	..	..	49.3	47	9.55	2.9	1
1896	19	38	2316	1962	2335	1900	8.13	..	..	55.3	66	11.93	6	2.1
1897	21	41	3082	2268	3103	2309	7.12	..	..	51.9	59	11.36	5.3	1.7
1898	16	28	3834	2277	3850	2304	5.98	19.1	7.9	52.7	50	9.48	6.7	1.5
1899	14	24	3759	2072	3773	2096	5.55	21.1	8.3	50.1	50.1	9.98	6	2.1
1900	18	30	3082	2388	3100	2418	7.80	38.6	17.7	67.4	79.6	11.81	7.9	2.4
1901	11	22	3320	3137	3331	3137	9.41	50.6	26.3	47.0	68.0	14.44	6.2	1.9
1902	12	24	3488	2881	3500	2905	8.30	42.9	16.4	98.17	117.1	11.89	14.3	5.0
1903	20	40	3522	3121	3543	3161	8.92	49.1	21.7	75.40	109.7	14.41	23.2	8.0
1904	13	31	3049	3676	3062	3707	12.01	52.7	28.2	48.84	85.4	17.47	20.8	8.4
1905	16	33	4288	3765	4304	3799	8.82	53.9	24.7	60.8	94.1	15.57	24.3	12.4
1906	16	33	3617	3977	3634	4010	11.03	37.8	18.5	70.9	108.8	15.33	26	13.6
1907	7	20	4519	4800	4524	4820	10.65	46.0	23.6	104.7	199.3	19.03	22.9	10.4
1008	12	33	3804	4344	3816	4377	11.47	45.8	26.3	71.0	141.7	19.95	10.7	4.4 5
1909	10	20	4438	4153	4448	4174	9 36	41.8	21.3	86.5	136.2	15.74	28.9	1.2 2
1910	11	32	3195	4472	3206	4504	14.4	54.3	81.2	86.	158.1	18.3	35.7	15.79
1911	8	23	4023	5830	4040	5853	14 4	49.	35.	113.7	247.7	21.7	56.3	29.4
1912	10	24	5524	5634	5535	5658	10.2	62.	35.1	109.7	202.1	18.4	34.4	16.4
1913	4	10	4557	5402	4562	54'3	11.09	78.	44.5	121 8	229.9	18.8	44.7	21.3
1914	7	16	4753	6 88	4760	6104	12.8	67.	45.6	123.3	194.5	15.7	26.8	12.9
1915	2	4	4401	3737	4403	3762	8.5	47 6	29.3	185.2	232.0	12.5	10.4	4.8

end with the coming of peace. While this business is only temporary it is a present boon to domestic manufacturing while it woolen fabrics is causing a shortage of woolen merchandise, which is beginning to be felt and doubtless will soon become more

acute. That is a condition that has never before occurred in the memory of the oldest men in the woolen district. In previous years stock goods have invariably been sold at heavy losses for the manufacturers, but at present stocks are small and are sought after at prices above their former selling value. The sellers have the clothing trade on the run, which is an unheard of event in the past. Some goods that have been in stock for one or two years have recently been sold at substantial advances over the original prices and without dating the bills ahead a day. Such sales have recently been made to some of the most prominent clothing firms.

The dyestuffs shortage has grown more and more serious with stocks daily growing smaller. This has become so vital a point with manufacturers that it is apparent that many goods sold on orders cannot be made at any price, unless relief on the supply of dyestuffs is made by the release of large quantities of German dyestuffs now being held up abroad. Manufacturers will be compelled to take advantage of the clause regarding the impossibility of securing the proper quantities of dyestuffs. The extraordinary efforts being made here to enlarge and increase the output of domestic dyestuffs have not up to the present time given any substantial relief. Many buyers have become skeptical regarding the orders they have placed and great uneasiness prevails among them.

Considerable agitation of the question of better fabrics for the medium priced clothing that is sold so extensively to the ordinary consumer has been made. Buyers have been ordering inferior fabrics at prices formerly paid for better qualities in order to make suits that may be sold at the old prices. Such fabrics are bound to bring serious complaints and claims to the sellers in the future, as they cannot give satisfaction. It seems strange that retail prices for clothing cannot be advanced slightly so that the same quality of fabrics can be used as in the past. The consumer undoubtedly expects the usual wearing qualities and will be dissatisfied with the inferior fabrics. The question of 50 cents or $1.00 on the price of a suit is a very small matter when the wearing qualities are involved. The general consumer knows that the cost of fabrics has increased to a considerable extent and that the price of suits must inevitably be advanced to meet the additional cost, or that faked goods must be used. Such goods, while costing from 40 cents to 75 cents per suit less, make clothing that is worth several dollars less.

Reports from the wholesale clothing trade are quite satisfactory. They state that largely increased sales of clothing are coming in from all sections of the country. Stocks of the retail trade had become so much depleted that they were obliged to make purchases to bring their stocks up to the normal quantities which has resulted in a satisfactory business for the wholesale trade. Duplicate orders for heavy weight piece goods have been coming in from many sections and some mills have had to refuse the orders on account of the necessity of making other fabrics now in process. Others have had to refuse to make goods at former prices. Buyers refused to pay the advanced prices, preferring to lose sales rather than pay a slight advance for goods. Heavy weight goods are in very light supply and mills generally are not in a position to make any more of them. This, coming so early in the season, will undoubtedly cause a serious dearth of such fabrics for the balance of the season. The clothing trade has continued to revise and cancel their spring orders. The new orders coming in fully affect the cancellations and in some cases the mills are not in position to accept any more orders.

All the lines of the better grades of dress goods have been placed on sale and they have met with an active demand for practically all classes of fabrics. Selling agents report a satisfactory business. The extraordinary demand for poplins, which set in a month ago, has resulted in some mills being oversold to such an extent that the orders had to be reduced in quantities. These fabrics seem to be decidedly in the lead on sales of piece dyed goods.

Styles for fancy dress goods have become more mannish than at any previous

time, they are following closely on the men's wear styles in plaids and stripes. In fancy goods colors many are plain with a large percentage of white or natural colored wool. These colors were largely sampled to induce their sale to conserve the dyestuffs and encourage the sale of light colors requiring but little dyestuffs in their manufacture.

The cooler weather of the latter part of the month had a stimulating effect on the demand for fall dress goods, with considerable business being booked on both fancy and staple effects with mills which were in position to accept orders for such goods. The fall cloaking business remains very dull. It will take a spell of colder weather to start it up.

A satisfactory business has been done on clothes for the cap and hat trade which has sampled them freely. Many of these clothes were formerly imported and with that business cut entirely off the domestic mills are getting the entire business.

One result of the large business being done on army goods is the effect such sales are having on salesmen in the woolen district. They say the contracts, with which they have nothing to do, very largely reduce the quantities of goods they have to sell. While the woolen business is in a prosperous condition many individual salesmen show dissatisfaction.

Stock and Consumption of Cotton in the United States

The Bureau of the Census has issued the following report of the cotton consumed and on hand, and the active cotton spindles in the United States, also the imports and exports of cotton for the 12 months ending July, 1915, compared with the figures for 1914:

Bales	1915	1914
Consumed	5,598,798	5,626,078
On Hand August 31		
At Mills	1,166,190	675,873
In Warehouses	1,676,231	546,923
Active Spindles	31,064,519	30,347,970
Imports		
Egypt	252,373	138,579
Peru	10,353	12,627
China	25,630	20,772
Other	93,931	89,010
Total	383,287	260,988
Exports		
United Kingdom	3,771,646	3,455,845
Germany	242,661	2,785,963
France	682,630	1,086,527
Italy	1,109,541	515,180
Other	2,737,095	1,307,286
Total	8,543,573	9,150,801

AN EMERGENCY MEETING OF HOSIERY MANUFACTURERS

In response to a letter sent out early in September by the National Association of Hosiery and Underwear Manufacturers, about fifty knit goods manufacturers met at the Manufacturers Club, Philadelphia, on September 21 to confer as to ways and means for meeting the extraordinary situation that has developed in the trade.

Charles E. Leippe, a former president of the association, called the meeting to order and Secretary Carter then read a letter from President Withers, who was unable to be present. Mr. Withers referred to the fact that combining to raise prices was illegal under the Federal Statutes and stated that every knit goods manufacturer must conduct his business as he sees fit. The letter concluded with the observation that the problem of making a profit depended upon reducing the cost of production or increasing the selling price.

Garnett Andrews, of Rossville Ga., said in part:

We have reached the point when radical action must be taken, if the hosiery business is to go on. The cutting off of dye imports, combined with increasing exports of hosiery, has put the manufacturer in a place where he is is flooded with orders without being able to take advantage of them.

The United States is supplying Australia, South America, Great Britain and other countries formerly supplied by Germany. The dye situation is the most serious factor facing the hosiery trade today. Domestic dyes, which we have been promised so long, have not appeared upon the market, and we are in danger of a general shutdown unless something is done to relieve the shortage.

On the other hand, high prices in artificial silk and a rising cotton market have brought us to a place where we must get higher prices as a means of self-preservation.

W. E. Chipman, of the Chipman Hosiery Mills,

charged the New York selling agents with the whole blame for the price trouble. He said they have their own New York selling office and can see it in that office. The agents assert that if prices are raised the customers will be offended and business lost and they would rather withdraw the line than make an advance. Supply and demand regulate prices and he said the supply will not be equal to the demand when it is time to make spring deliveries and there will be a scramble for goods and the idea of offending the customer if you increase prices is wrong and the manufacturer who goes out with the best goods at the best prices will get the business. He said that there is a tremendous export business, but the merchandise must be light in weight, as duty in South America is based on weight, if the manufacturer goes after this business.

Other manufacturers, discussing the price question and particularly the 25-cent artificial silk stocking, favored an increase, said they had increased the price or notified the trade of an intended increase.

G. Oberlander, of the Berkshire Knitting Mills, advertised that officials at Washington be urged to take steps to secure some relief from the dyestuff shortage as the same shortage will soon be reached in other colors as now exists in blacks. In this connection he also suggested that the association establish a bureau for the exchange of dyes, which idea was recommended by the Daily Trade Record some time ago. This idea met with considerable approval and may be followed out.

The action of the association in calling the attention of the trade to the Aims dye was criticised by P. E. Sutro during a discussion of the possibility of impressing upon Secretary Redfield the fact that dyes are actually scarce and a serious condition confronts manufacturers. This idea was also championed by Herman Loeb, who declared the association mislead the public and the publicity given the Aims tests were detrimental to the hosiery manufacturers and it was contended that it is not possible to impress Washington officials with the seriousness of the matter and complain of the scarcity of dyes after these announcements.

Exception was taken to this and it was explained that the association acted in good faith. Mr. Lippe said it was not any stock jobbing scheme and that the association was informed at first that those interested had all the money they needed, and declared it was done in the interest of hosiery manufacturers whom they thought could be the first to take advantage of it. The same view was expressed by F. W. Simons, who said that possibly it was not the wisest thing to have done, but he added with respect to influencing Secretary Redfield that it did not seem to take much to influence him.

Garnett Andrews said the public is not aware of the actual situation. They have read in the newspapers of laboratory tests and discoveries, but as a matter of fact there are only one or two real factors in the business and he felt it better not to discuss these "discoveries" until they are proven successful. When one talks dyes to a buyer he said the buyer shows newspaper stories about all sorts of dye discoveries and cannot be convinced of the actual situation. While a member discussed increased prices, F. W. Simons said he had been compelled by his competitors to cut prices lower than ever before and asserted that the man who does not get a profit on his goods is not a legitimate competitor.

T. F. Thieme, of the Wayne Knitting Mills, pointed out that England and France have helped their manufacturers to develop dyes even though they are engaged in war and urged that our government, which is not at war, do something for our own manufacturers, particularly as our resources are large.

Some of those present advised that a press campaign be started to extend the use of white hosiery, while others advised applying to Washington by letters and personal interviews with the Federal officials.

A committee on Resolutions, consisting of Joseph S. Rambo, J. O. Wells, W. E. Chipman, G. Oberlander, Paul E. Sutro and T. F. Thieme, was appointed and drew up the following resolutions which were unanimously adopted:

Whereas, all efforts by individuals to manufacture dyestuffs in this country have afforded but slight relief, and the outlook for the future is very discouraging and in fact, serious, and

Whereas, as a matter of fact, practically every mill making hosiery is either working short time or shut down, thereby throwing many thousand operatives out of employment on account of insufficient supply of dye material, and

Whereas, foreign dyes in reasonably large lots are now lying in European ports ready for shipments to this country, but awaiting diplomatic negotiations between the government of the United States and the governments of England and Germany, and

Whereas, the government of England soon after the war began cooperated with its manufacturers and its dye industry in a manner to relieve the dye situation in that country and the manufacutrers in consequence through this and the cooperation of its government are in a position to maintain their industries and keep their plants running, therefore be it

Resolved, that we earnestly implore our government to take such effective steps that will relieve the situation, and be it further

Resolved, that a copy of this resolution be forwarded to the President of the United States, Secretary of State and Secretary of Commerce.

Following is a list of those present:

Joseph S. Rambo, of Rambo & Regar, Norristown, Pa.; Garnett Andrews, Richmond Hosiery Mills, Rossville, Ga.; J. O. Wells, of Cooper, Wells & Co., St. Joseph, Mich.; G. Oberlander, Berkshire Knitting Mills, Reading, Pa.; F. W. Simons, of Simons & Struve, Philadelphia; P. E. Sutro, of Sutro Bros. & Co., Philadelphia; W. E. Chipman, Chipman Hosiery Co., Easton, Pa.; W. Parke Moore, Brown Knitting Mills, Philadelphia; H. Berendsen, of Bangor (Pa.) Silk Knitting

Co.; Herman Loeb, of Rosenau & Loeb; T. F. Thieme, of Wayne Knitting Mills, Fort Wayne, Ind.; George Taubel and William F. Taubel, 2d, of Taubel Bros., Philadelphia.

J. W. Wolfinger, Reading, Pa.; Charles E. Lippe, Reading, Pa.; C. Walker Jones, Beckert Needle and Supply Co., Philadelphia; Albert Brandies, of Dundies Hosiery Mills, Philadelphia; Van Court Carwithen, Philadelphia; Robert P. Smith, Philadelphia; William Vernon, of Wm. Vernon, Son & Co., Philadelphia; Jacob Bauer, of Standard Machine Co.; John Keesey, of Keesey Hosiery Co.; Charles Taubel, of Henry Taubel & Son, of Riverside, N. J.; M. E. Malich, of Shamokin Knitting Mills, Snydertown, Pa.; Fred. Kaser, of Fred. Kaser & Co., Philadelphia; H. M. Gwyn, of Oneida Hosiery Co., Philadelphia; G. W. Starry, New Idea Hosiery Co., Harrisburg, Pa.; Charles and W. E. Chipman, of Easton, Pa., and C. B. Carter and others.

SOUTHERN TEXTILE EXPOSITION

The Textile Machinery Supply and Products Exhibition, which is to be held in Greenville, S. C., the week of November 2nd to 6th, promises to be a success beyond the expectations of its promoters. It is the first textile machinery exhibition that has been held in the South to our recollection since the Atlanta Exposition in 1881, which the Textile Record, now the Textile World Record, had a large share in promoting. The attendance will undoubtedly be large, especially as the extent and variety of the exhibits cover such a broad scope, as may be seen by the list of exhibitors printed below.

The Southern Textile Association, whose membership is composed largely of Southern mill superintendents and foremen, holds its convention during that same week, and as their meetings have always been well attended, the added interest of the exhibition will draw a still larger crowd.

Greenville is a big mill center and the natural attendance from a radius of fifty miles only will insure the presence of hundreds of Southern mill men.

The terminal buildings of the Piedmont and Northern Railway Co. were secured for the exhibition. The original building soon proved inadequate to meet the demands for space, so the management has been obliged to secure additional floor room in adjoining buildings which will be connected by passageways. So far as is possible they are grouping certain classes of exhibits together. For instance, the products of the mills will be exhibited in one section, textile schools in another, while the machinery and supply exhibits will occupy several floors.

The Executive Committee of the American Cotton Manufacturers Association has arranged to hold one of its meetings in Greenville during the exhibition. The hotels have promised to treat the visitors right and rates on the American plan will be arranged during the exhibition week. If the attendance is as large as now seems probable it will be advisable to make early hotel reservations.

Southern manufacturers have always been keenly alive to the latest developments in textile machinery and supplies and exhibitors whose experience at the Boston Exhibition has been so satisfactory are confident that their Greenville experience will be profitable.

Following is list of exhibitors who have booked space up to the first of October:

Butterworth & Sons Co., H. W., Philadelphia, Pa.
Textile World Record, Boston.
Stafford Co., Readville, Mass.
General Electric Co., Schenectady, N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
N. Y. & N. J. Lubricant Co., New York.
The Texas Co., Greenville, S. C.
Bragdon & Co., J. H., New York.
Guion Starch Co., Greenville, S. C.
Acme Loom Reed & Harness Co., Greenville, S. C.
Williams, J. H., Co., Millbury, Mass.
Babcock & Wilcox Co., New York City.
Leslie Loom Reed & Harness Co., Charlotte, N. C.
Bennett & Co., Frank P., Boston, Mass.
Emmons Loom Harness Co., Lawrence, Mass.
Lowinson, Charles, New York.
U. S. Bobbin & Shuttle Co., Providence, R. I.
Textile Exhibitor's Association, Boston, Mass.
Mill News Printing Co., Charlotte, N. C.
Westinghouse Electric & Mfg. Co., Pittsburg, Pa.
Howard Bros. Mfg. Co., Worcester, Mass.
Mason Machine Works, Boston, Mass.
Southern Power Co., Charlotte, N. C.
Barber-Colman Co., Rockford, Ill.
National Starch Co., Greenville, S. C.
Cotton Publishing Co., Atlanta, Ga.
Keever Starch Co., Columbus, Ga.
Sirrine, J. E., Greenville, S. C.
Victor Shaw Ring Traveler Co., Providence, R. I.
Universal Winding Co., Boston, Mass.
U. S. Gutta Percha Paint Co., Providence, R. I.
Keever Bros., Co., Newark, N. J.
Jacobs Mfg. Co., E. H., Danielson, Conn.
Wattles Sizing Co., Greenville, S. C.
Steel Heddle Mfg. Co., Philadelphia, Pa.

Klipstein & Co., A., New York.
National Starch Co., Greenville, S. C.
Draper Co., Hopedale, Mass.
Greenville Loom Reed & Harness Co., Greenville, S. C.
Manufacturers Record, Baltimore, Md.
Lombard Iron Works & Supply Co., Augutsa, Ga.
Mimms, H. C., Greenville, S. C.
Southern Textile Bulletin, Charlotte, N. C.
Puro Sanitary Drinking Fountain Co., Heydenville, Mass.
Piper Roofing Co., Greenville, S. C.
Sanitary Engineering Co., Charlotte, N. C.
Leyland Co., Thomas, Readville, Mass.
Textile Manufacturer, Charlotte, N. C.
Western Electric Co., Atlanta, Ga.
McNaughton Grate Bar Co., Maryville, Tenn.
Walsh & Houstin Mill Sewing Machine Co., Lawrence, Mass.
Normalair Co., Winston-Salem, N. C.
Empire Mfg. Co., Goldsboro, N. C.
Robinson & Son Co., W. C., Baltimore, Md.
Mossberg Wrench Co., Central Falls, R. I.
Warren Webster & Co., Camden, N. J.
Yarnall-Waring Co., Philadelphia, Pa.
Charlotte Mfg. Co., Charlotte, N. C.
Reeves Pulley Co., Columbus, Ind.
Smith, Drum & Co., Philadelphia, Pa.
Norris Bros., Greenville, S. C.
Burroughs Adding Machine Co., Greenville, S. C.
American Kron Scale Co., New York.
Poe Hardware & Supply Co., Greenville, S. C.
Cling-Surface Co., Buffalo, N. Y.
Southern Novelty Co., Hartsville, S. C.
Dixie Packing Co., Atlanta, Ga.
Keystone Lubricating Co., Savannah, Ga.
Addressograph Co., Atlanta, Ga.
Felt & Tarrant Mfg. Co., Chicago, Ill.
Dixon Crucible Co., Joseph, Atlanta, Ga.
International Acheson Graphite Co., Niagara Falls, N. Y.
Cliper Belt Lacer Co., Grand Rapids, Mich.
Carolina Supply Co., Greenville, S. C.
Felton Brush Co., D. D., Atlanta, Ga.
Conn. Mill Supply Co., Woodbury, Conn.
Ashworth Bros., Fall River, Mass.
Aberfoyle Mfg. Co., Chester, Pa.
Keystone Fibre Co., Yorklyn, Del.
Lunkenheimer Co., Cincinnati, O.
American Pulley Co., Philadelphia, Pa.
Murphy Iron Works, Cincinnati, O.
Mill Life, Greenville, S. C.
Westminster Shuttle Works, Westminster, S. C.
Graton & Knight Mfg. Co., Atlanta, Ga.
Leatheroid Mfg. Co., Philadelphia, Pa.
Dixie Seal & Stamp Co., Atlanta, Ga.
Searchlight Co., Chicago, Ill.
Georgia Tech., Atlanta, Ga.
Textile Industrial Institute.
Government Exhibit.
Y. M. C. A., Industrial Department, Charlotte, N. C.
Clemson College, Clemson, S. C.
Borhan Mills, Anderson, S. C.
Williamston Cotton Mills, Williamston, S. C.
Aragon Cotton Mills, Rock Hill, S. C.
Arcade Cotton Mills, Rock Hill, S. C.
Nuchasee Mfg. Co., Greenville, S. C.
Judson Mills, Greenville, S. C.
Graniteville Mfg. Co., Augusta, Ga.
Camperdown Mills, Greenville, S. C.
Union Bleaching & Finishing Co., Greenville, S. C.
Woodside Cotton Mills, Greenville, S. C.
Pelzer Mfg. Co., Greenville, S. C.
Watts Mills, Laurens, S. C.
Dunean Mills, Greenville, S. C.
Sparton Sizing Compound Co., Spartanburg, S. C.
Rosemary Mfg. Co., Roanoke Rapids, N. C.
Ware Shoals Mfg. Co., Ware Shoals, S. C.
Millohon Mfg. Co., Newberry, S. C.
Loray Mills, Gastonia, N. C.
Poe Mfg. Co., F. W., Greenville, S. C.
Parker Cotton Mills, Greenville, S. C.
Spray Engineering Co., Boston, Mass.
Parks Co., G. M., Fitchburg, Mass.
Terry Steam Turbine Co., Hartford, Conn.
Jenkins Bros., New York.
Goulds Mfg. Co., Atlanta, Ga.
Peech Sons & Phillips Co., Philadelphia, Pa.
Curtis & Marble Machine Co., Worcester, Mass.
Andrews Loom Reed & Harness Co., Spartanburg, S. C.
American Machine & Mfg. Co., Greenville, S. C.
Saco-Lowell Shops, Charlotte, N. C.
Hauck Mfg. Co., Brooklyn, N. Y.
Lord & Nagle Co., Boston, Mass.
National Ring Traveler Co., Providence, R. I.
Peace Printing Co., Greenville, S. C.
Seydell Mfg. Co., Jersey City, N. J.
American Moistening Co., Boston.
Otis Elevator Co., Atlanta, Ga.
Courtney Co., Dana S., Chicopee, Mass.
Suter, Alfred, New York.
Bonner & Barnewall, New York.
The Philadelphia Grease Mfg. Co., Philadelphia, Pa.
Whitinsville Spinning Ring Co., Whitinsville, Mass.
National Scale Co., Chiconee Falls, Mass.
Alexander Bros., Philadelphia, Pa.
Ensign Mfg. Co., Boston, Mass.
Livermore Co., H. F., Boston, Mass.
Byers Co., A. M., Pittsburgh, Pa.
Standard Fiber Co., Somerville, Mass.
Douglas Co., Cedar Rapids, Ia.
Scott & Williams, Boston, Mass.
Tolhurst Machine Works, Troy, N. J.
Flintkote Mfg. Co., New York.
Schutte & Koerting Co., Philadelphia, Pa.
States, L. A., Gastonia, N. C.
Anglo-American Textile Machinery Co., Abington, Mass.
Day Adjustable Bearing Co., Belton, S. C.
Goodrich Co., B. F., Akron, O.
Cramer, Stuart W., Charlotte.
Textile Finishing Machinery Co., Providence, R. I.
Weston Electrical Instrument Co., Waverly Park, Newark, N. J.
May, Chas. F., Greenville, S. C.
Economy Engineering Co., Chicago, Ill.
Huntington, R. S., Greenville, S. C.
Monroe Circulating Machine Co., Orange, N. J.
American Warp Drawing Machine Co., Atlanta, Ga.
Firth, William, Boston.
Foster Machine Co., Westfield, Mass.
Economy Fuse & Mfg. Co., Chicago, Ill.

NATIONAL EXPOSITION OF CHEMICAL INDUSTRIES

This exposition was held at the Grand Central Palace, New York, from September 20th to 25th, inclusive. The exhibition consisted of the showing of samples of chemicals, dyestuffs and the machinery used in the manufacture of these products. The main object was to show to the public progress which had been made in the domestic dyestuff industry, one of the largest exhibitors being the U. S. Bureau of Foreign and Domestic Commerce. This exhibit covered the entire front of the building and was one of the most interesting features of the exposition. Many interesting demonstrations were given, showing the methods of identifying fibers, detecting adulteration of fabrics and the effect of sizing and loading. Here also could be seen the tests for the moisture content of yarns under different asmospheric conditions, as well as the effect of humidity on the strength of the same. Another feature of this particular exhibit was the showing of dyed samples, known as petrocine colors, made of waste products of petroleum. The Bureau of Foreign and Domestic Commerce has these colors now under further investigation and expects to be able to produce a direct dye on cotton, silk and wool. Adjoining this booth was the Thomas A. Edison Company, who showed various samples of basics which are used in the manufacture of dyestuffs. Another exhibit of merit was that of the National Aniline and Chemical Company, 100 William St., New York City, who showed samples of dyed yarn and many containers filled with aniline and alizarine colors and dyeing solutions. The W. Beckers Aniline & Chemical Company also had an interesting exhibit of the first and second stages of intermediate products, comprising source of bituminous coal materials, finished aniline colors, together with samples of dyed fabrics. The Torsion Balance Company, manufacturers of accurate balances used in the textile trade, had a very interesting exhibit of their numerous balances and also had on exhibition a new analytical chain balance scale made by C. Becker, Inc., which attracted much attention. The Tolhurst Machine Works, Troy, N. Y., showed one of their well known Tolhurst self balancing extractors and were kept busy explaining its many good features. Schaum & Uhlinger, Inc., Philadelphia, had a very atractive booth and showed their extractor running at 3,000 revolutions per minute. Other exhibits of note were made by the Standard Aniline Products, Inc., General Bakelite Company, Buffalo Foundry, Buffalo, showing their vacuum apparatus and chemical filters, the Automatic Weighing Machine Company, the American Hard Rubber Company, the Brown Instrument Company of Philadelphia, the Chemists Club of New York City, the Bensol Products Company, Toch Bros., New York, the Norton Emery Wheel Company, Wooster, the Schaeffer & Budenburg Company, Brooklyn, and Heller & Merz, Newark, N. J.

There were also many other interesting booths occupied by manufacturers of chemical apparatus. On Wednesday evening, Sept. 22nd, Dr. Thomas H. Norton of the United States Department of Commerce, and I. F. Stone, president of the National Aniline & Chemical Company, made addresses which were listened to by many textile and chemical manufacturers, besides those in the allied trades. Owing to the present scarcity of dyestuffs in this country, the exhibition created much interest in the textile trade, as well as in kindred lines, and showed the progress that had been made in the manufacture of many ingredients used in the dyestuff industry.

Another feature which was much enjoyed was the moving pictures in the auditorium in the afternoon and evening of each day, depicting the manufacture of paper, paints and other chemicals.

Following is an abstract of Mr. Stone's address:

ANALYSIS OF THE SITUATION

To show you the lines of manufactures which are dependent on their supply of dyestuffs to continue their regular production I would say the most important, perhaps, are the textile manufacturers, comprising cotton, wool, carpets, knit goods, silk, cordage, shoddy, dyeing and finishing.

The following figures are taken from the census of 1909:

	Establishments	Employees	$Capital	Salaries and wages	Value of product
Cotton	1,324	387,771	822,237,529	$147,270,903	$628,391,813
Wool	985	175,176	430,578,574	82,523,776	435,978,558
Carpets	139	34,706	75,627,010	17,745,092	71,188,152
Knit goods	1,374	136,130	163,641,171	52,431,680	200,143,527
Silk	852	105,238	152,158,002	46,097,364	196,911,667
Cordage	164	27,214	76,020,366	10,995,545	61,019,986
Shoddy	88	2,320	6,886,825	1,196,376	7,446,364
Dyeing and finishing	426	47,303	114,092,654	26,261,634	83,556,432
	5,352	915,858	$1,841,242,131	$384,522,370	$684,636,499

You will see that there are over 5,000 of these establishments with over 900,000 employes, with a capital invested of $1,841,242,151, who are paying in wages annually $384,522,370 and the value of whose product is $1,684,636,499.

Then there are the leather manufacturers and tanners, of which there are over 900 establishments, with a capital of $322,726,952, employing over 62,000 people and the value of whose production is $327,874,187.

Then again there are the paper manufacturers, numbering over 750, with oevr 81,000 employes, with capital invested of over $400,000,000 and the value of whose product is over $260,000,000.

Then there are the paint and color manufacturers, about 900 in number, with a combined capital of about $250,000,000 and employing 30,000 men.

As I said at first, these figures are taken from the census of 1909, and those who are interested in these particular lines tell me that there has been an increase in practically every industry averaging about 25 per cent., so that the figures should be something like 20 per cent. more than those given. Add to these lines of business others which are not separated in the census, such as printing and writing ink manufacturers, shoe dressing manufacturers and a hundred and one other lines which consume dyestuffs, and I think I could safely say there are upward of 2,000,000 people employed in industries which require the use of dyestuffs and who are now affected by the present shortage. Others affected, of course not so directly, are the public generally, who will soon find that they cannot get what they want and will have to take what they can get, and if some changes do not take place very shortly, a totally new scheme in colors will have to be presented to the American public.

We have now come to a point where we are under unusual conditions, and the American industry again has a chance to develop, and it would seem a pity if the present administration would not take the opportunity to help the manufacturers to do so.

Some months ago Secretary Lane of the Interior Department called a meeting of the various chemical manufacturers, to get their ideas as to the situation and what was to be done about it, and at that meeting what little I said was to the same effect as what I am now saying, viz., the necessity of tariff action. Mr. Lane made the observation that if this were done it would create in this country a great monopoly or trust and he did not think it would be advisable; but, as a matter of fact, the lack of this legislation has simply resulted in a great trust or monopoly in Germany, so I could not see where there could be any reason in this point. Such legislation would not necessarily create a monopoly here, as any one would be open to go into the business, the only point being that it would put us on equal terms with foreign competition, and this is the only result desired, not monopoly. Mr. Lane further said, however, that the matter would probably be put in the hands of the Department of Commerce, and eventually it was.

Some time afterward I called on Secretary Redfield of the Department of Commerce, and found that he was very sanguine over the ability of American manufacturers through their ingenuity and ability to create this business without help of a tariff, and instanced a number of new concerns who had started in the business since the war commenced, giving me the names of parties in Elizabeth, N. J., Chester, Conn., Edison of Orange, N. J.; Wappingers Falls, N. Y., Newark, N. J., Stamford, Conn., Perth Amboy, N. J., and Lincoln, N. J., who were about to enter the business; but as I know most of these parties through previous inquiry, I told him they were not being established for the manufacture of colors, but simply for such intermediate products as aniline oil, carbolic acid, beta naphthol and paranitranilin, which are more easily manufactured, and while they might be profitable under war conditions, could not possibly exist under normal conditions, which I believe is true. Mr. Redfield was very much interested in the matter, and said that his department was doing everything possible to foster the development of the business in the United States, but could not say that he was in favor of higher tariff, as it was against his policy and against the policy of the present administration, but that he was in favor of some anti-dumping legislation, which would prevent the selling in this country of European colors at lower prices than to other countries, and he thought something would be done in this line to prevent it in the future.

Notwithstanding the fact, however, that the administration as represented by Secretaries Lane and Redfield is apparently opposed to higher tariff, is the fact that in the meantime, in fact only a day or two ago, Dr. Thomas H. Norton, special representative of the Department of Commerce, gave his views on the dyestuff tariff in the New York Sun and New York Herald of Sept. 15, admitting that in spite of the fact that he does not think the general line of colors need any more protection,

he does feel that some of them, like indigo, alizarine and others which are on the free list, should have some protection to be successfully made here, and if he were to go a little more carefully into the matter would find that while 30 per cent. duty on the ordinary aniline colors might be sufficient, if it were a clear protection, as a matter of fact the intermediate and raw products which are used in this manufacture carry a duty of 10 to 15 per cent., so that the real protection on aniline colors is not half what it apparently is in the bill.

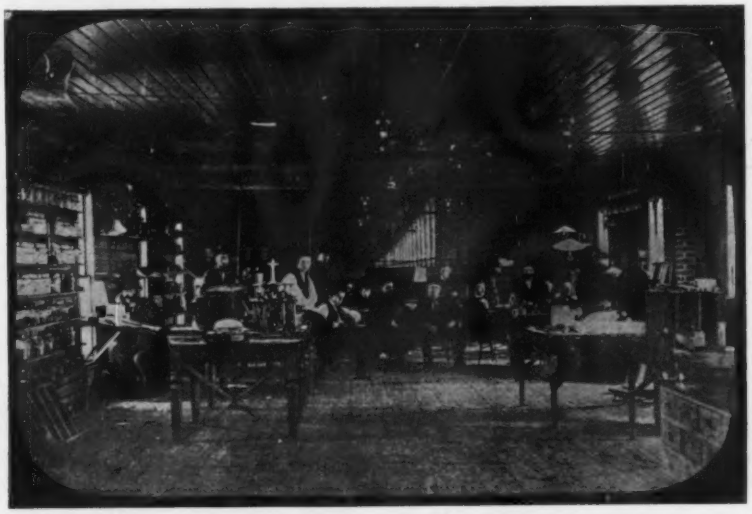
In closing, I might say, however, that there is one thing which might be done in lieu of an increased tariff protection and which has been suggested before in different forms, but which is so reasonable and simple that I do not suppose it will be considered by our political leaders and parties, and that is, the establishment by the United States of a factory or series of factories for the manufacture of the intermediate coal tar products needed by the color manufacturers, and an arrangement to sell same to them at the same prices which are paid by the German manufacturers, even though there might be no profit or even a possible loss to the Government in doing so. In addition to this great relief to American color makers, the Government, however, would have the greater purpose in mind of having plants already established capable of manufacturing ammunition in case of war; the point being that the raw material used by color makers are very much the same as those used in the manufacture of various kinds of ammunition and explosives, and certainly such a factory or series of factories would be a very valuable asset for the Government.

I believe it is true that other Governments take an interest in and control to some extent their natural resources, for instance Germany is interested in her potash and coal fields, Japan in her production of camphor and menthol, and other Governments in other products, therefore it is not out of reason that the United States Government should take a parental interest in its great benzol production, and the use of same for such purposes as the manufacture of aniline dyes for its American consumers, and the manufacture of explosives for its own protection should it become necessary. Certainly such a matter is well worth considering by our Administration, if it is impossible to secure added tariff protection on the lines mentioned so many times in this address.

EDISON AND THE ELECTRIC INCANDESCENT LAMP

Edison Day, October 21, commemorates the thirty-sixth anniversary of the invention of the electric incandescent lamp and honors its master inventor, Thomas A. Edison.

Edison practically began his experiments in electric lighting in September, 1878. Just previous to this he had returned from a visit to a Connecticut factory where an electric arc lamp was used, which concentrated his thoughts on the subject of lighting by electricity, and he determined to tackle the problem. Speaking of his entrance into the field, Edison has said, "The idea struck me all of a sudden in 1878. . . . . In those days, it was easy to see what electric lighting needed —it wanted to be sub-divided. The lights



INTERIOR OF EDISON'S LABORATORY, MENLO PARK, AT THE TIME HE INVENTED THE ELECTRIC INCANDESCENT LAMP

were too bright and too big. What we wanted was little lights and to distribute them to people's houses like gas.

"On October 21, 1879, I carbonized a piece of treated cotton sewing thread bent into a loop, and sealed it in a glass globe from which the air had been pumped out. When the current was turned on, that black thread glowed for forty hours. That was really the first incandescent electric lamp."

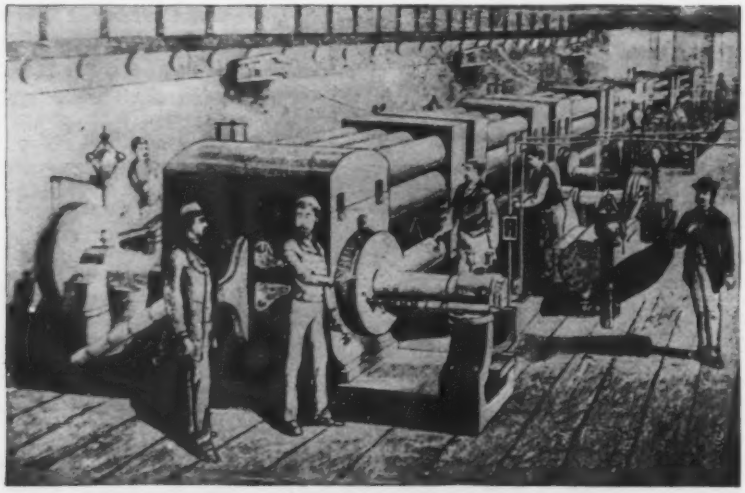
Commenting on the stirring scenes in the laboratory at the time of the discovery, Mr. Edison says, "We sat and looked, and the lamp continued to burn, and the longer it burned the more fascinated we were. None of us could go to bed, and there was no sleep for over forty hours. We sat and just watched it with anxiety and growing elation.

"It couldn't be put on the market, of course," he continued on the subject of the lamp, "but it showed unmistakably that electricity could be used for incandescent lighting. I spent about $40,000 in bringing the investigation up to that point; and yet in a way, this was only the beginning. A little later we placed several hundred paper-filament lamps on the market. Although people liked them, I knew we could do better. So I began a hunt for the right kind of carbon. Men were sent all over the world to collect grasses and fibers that looked promising. They brought back several hundred, and out of the lot I selected a certain kind of bamboo that grows in Japan. We made filaments out of that nine years."

Edison also did a great deal of work with metal filaments, similar to those used at present.

Edison paved the way to original scientific investigation in the lighting field, and this work is all being carried on in the research laboratories of the General Electric Company by what is probably the greatest corps of lighting experts and scientists in the world. The technical skill employed to improve constantly electric lamps and lighting embraces every phase of associated invention, design and manufacture. Practically every branch of science and engineering is represented in this great work of experimentation, testing and development. The effectiveness of such extensive investigation is best secured through co-ordinated effort. What is known as Mazda Service has therefore been established, the results of which are concretely embodied in each Mazda lamp.

This service, with its headquarters at the Schenectady laboratory, draws upon the entire scientific, engineering and manufactur-



INTERIOR OF THE PEARL STREET STATION, FIRST EDISON ELECTRIC LIGHTING STATION IN NEW YORK

ing skill of scores of laboratories and lamp factories. It studies the materials and methods at each factory, examines their test records, makes its own check tests, gathers and compares the scientific data obtained at each laboratory, systematizes the mass of information thus obtained and presents it to the study of the experts of the laboratory staff, and then transmits the carefully sifted results to each factory entitled to the service, so as to enable each factory to embody in its product the combined manufacturing experience of the largest lamp factories and the scientific knowledge of the experts most skilled in lamps and lighting.

Edison has emphasized the value of continuous research work and given us a vision of the future in the science and art of electric lighting. "No invention is perfect," he says, "and the incandescent lamp it not an exception. Light without heat is the ideal, and that is still far off. The electric incandescent lamp of today is the cheapest form of filament that has ever been produced, but some day it will be cheaper and colder than it is. There is a good deal of truth in the saying that the firefly is the ideal. It is, so far as coldness goes. But its color is against it. You couldn't use a thousand candle firefly to match colors, and you wouldn't want the insect to light up a street, because his light would be a hideous greenish yellow. But some day we will get reasonably near the firefly for efficiency without copying his disagreeable color. The task needs much investigation, much research of the kind we did in 1879. The research that we began then is still going on, and it always will go on. Somehow, each new discovery opens up the way to another."

THE NATIONAL ASSOCIATION OF WOOLEN AND WORSTED OVERSEERS

The thirty-third annual meeting of the National Association of Woolen and Worsted Overseers will be held at the American House, Boston, Mass., on Saturday, November the 20th. The meeting will be called to order at 11 A. M. The committee on arrangements appointed by the President at the last meeting met on Saturday, September 4th and made arrangements for the banquet.

THE HOME MARKET CLUB

The annual banquet of the Home Market Club was held at the Copley-Plaza Hotel, Boston, on September 29. Something approaching the old time enthusiasm was manifested by the audience of more than five hundred in attendance. In his opening remarks President Dowse referred to the bereavement which prevented Senator Lodge from being present, and asked all to rise and remain standing in silence for three minutes as a mark of their sympathy for the senior Senator.

President Dowse discussed the tariff question, saying in part:

Through sunshine and storm this club has stood by a cause which experience has approved and events have justified. The policy of protection is not merely an American idea. Today there is not an important nation in the world that is not protectionist to a greater or lesser degree.

The remarkable efficiency of Germany is due to th unfaltering protection of her industries; now even England is coming into the fold. This is no time for the United States to falter or experiment with theories which all the world has abandoned. On the contrary, there is greater need than ever to safeguard our industries.

By the intervention of the war, we have been saved from the worst effects of the new tariff law, but war orders cannot be depended upon to stimulate business indefinitely. We must face conditions as they will be when the War God orders his armies to lay down their arms.

Warfare on the battle fields will cease. Warfare for the world's markets will begin. We need preparedness against this commercial warfare as much as against military or naval attack. We need custom houses as much as forts. We need an adequate protective tariff as much as artillery and battleships.

If I read the signs of the times aright, at the first opportunity that presents itself at the polls, the nation will declare, in a way that cannot be mistaken, for a return to wiser policies, for a restoration of prosperity, and for ample protection for our home market.

Senator Lawrence Y. Sherman, of Illinois, was then introduced and received an enthusiastic greeting. His address was in part as follows:

Imperative as is the need for a re-Republican victory in 1916, the speaker went on to say, there is something greater and more enduring now and hereafter. It rises above party and politics and race and creed. It is the spirit of Americanism regenerated, redeemed and rededicated to our republic by all who are gathered within its sheltering folds. Half the world is at war. None may ask that the ties of nativity be broken. We ask only that they be subordinated to the welfare of our country.

This must not be a republic of racial hate, of

alien jealousies, of people entangled in the ancient feuds of Europe. The wars of the Old World must not be waged in our country. The foreign and the native born must fuse in an unconquerable patriotism of America first and loyalty to our republic forever. Let us make it American, self-restrained, dignified, powerful, peaceable, but adequately prepared and capable of self-defence against either foreign or domestic enemies. This republic cannot be the theatre of alien plots and murderous strife.

Those who promote disorder within our limits to advance a foreign cause are properly rebuked and returned to their own country. The presence of a large body of unnaturalized, unassimilated aliens, whose number is estimated to reach into millions, who neglect or refuse to become American citizens may well challenge the attention of Congress.

Illinois will vote for protection in 1916—will join with Massachusetts, the Mississippi with the Atlantic and with the country in restoring the American system of protection.

No prohibitive rates are to be laid. They must be high enough only to be protective to legitimate industries which find here natural advantages capable of producing articles in quantity equal to our domestic needs. Such rates will secure American markets and payrolls to our own people and raise an adequate revenue for the government without resorting to war taxes and producing deficits in time of peace. Readjustment of any rates which are no longer protective or needed can be made from time to time without injury to any industry.

The most abhorrent act of the present Democratic administration is the statement that an American who seeks to open a market or extend the area of proper American influence abroad must expect no help or protection from the mother country. They are told all who enter on a foreign soil for gain are guilty of greedy commercialism and must assume there the risks of life and property. A more reprehensible, un-American declaration never came even from the Democratic party.

Why talk of foreign ventures under this administration when Americans abroad are curtly told to abandon their possessions and flee for their lives. This is the return from the government that exacts taxes from them in peace and more taxes and military service in war.

An overwhelming majority of the American people, I believe, properly favor President Wilson's peace policies with Europe and his diplomacy on disturbing questions of international law. That neither requires nor justifies approval or countenance of his costly and destructive mistakes in our internal affairs. History records that presidents have been re-elected to strengthen them when at war, but no such re-election has ever been had as the price of merely keeping us at peace when there was no good reason to go to war.

Just now the Democratic party is contemplating with satisfaction a trade balance in our favor. It exults in our benefits from a world-wide calamity as if it produced it and as if it would last forever. Habit is strong. An exact analysis of war supplies for a year of the war compared with the preceding year of peace demonstrates that two-thirds of that trade balance is exports of merchandise of war. The other one-third will be speedily lost on the resumption of peace by increased imports and be turned against us under present tariffs.

John Hays Hammond spoke briefly on the tariff question, laying emphasis on the need of an administration that would protect American interests both at home and abroad. The last speaker of the evening was Hon. William A. Prendergast, Comptroller of New York City. The tariff was the chief topic of his remarks. He condemned the Democratic policy, which, he said, had always brought uncertainty and depression. A non-partisan tariff commission came in for unqualified denunciation. If the tariff is to be revised, it should be revised by competent men, who know how to do the work, and not by a body of men with conflicting opinions as to how the revision should be made. Comptroller Prendergast also condemned the foreign policy of the Wilson administration and evoked vigorous applause from his hearers by declaring that if he had to choose between the two he would choose the Big Stick in the White House, rather than highly developed scholasticism.

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DEVICE FOR OVERCOMING TROUBLE CAUSED BY WORN CARD CHAINS

It is well known by every practical mill man there comes a time when the chains carrying the top flats on cards get so badly worn that the flats in leaving the bends come in contact with the stripping plate, and also fall away from the discs, allowing the top flat stripping comb to strike, thus dulling the wire on the flats and resulting in poor carding.

In trying to overcome these difficulties the usual adjustments are made to tighten the chains and when the limit of this adjustment is reached one or more flats may be taken out. But this tightening of the chains only increases the tension and causes them to wear still more rapidly until the distance between centers of the lugs on the flats is greater than the pitch of the sprockets driving them and new chains would be

required to bring the flats back in proper position in relation to the discs.

A recently patented device is offered by Morton & Andrews of Lowell, Mass., whereby a permanent repair is made, allowing the continued use of the chains, which completely overcome the above troubles at a cost very much less than that incident to their renewal.

The principle involved is in having the teeth of the sprockets contact with the lugs on the flats only at the top of the discs, thus keeping the chains in tension around the discs, thereby making it mechanically impossible for the wire on the flats to strike the stripping plate when leaving the bends, keeping the flats tight on the discs so that the correct adjustment of the stripping comb with relation to the flats is always maintained and preventing it from injuring the wire.

This device is easily applied in the mill, and is giving entire satisfaction on over five hundred cards on which it is already in use.

A STRIPPING MECHANISM FOR CARDS

The illustrations show an improved mechanism for stripping card flats by which the stripping comb and flat are kept at a uniform distance from each other. This device, which has recently been patented, is described by the inventor as follows: Fig. 1 is a side view of portions of a carding machine provided with the improved stripping mechanism. Fig. 2 is a plan of the stripping devices at one side of the machine, showing a portion of the carrier disc in section.

The machine is provided with a supporting frame and a shaft journaled in the frame. A disc is provided at each end portion of the shaft for carrying the flats. As the devices are alike on both sides of the machine the illustration and description will be confined to one side. The flats are provided with suitable wires or carding material and they are articulated together or connected by a chain in any approved way and are driven by the discs and the shaft. All of the above mentioned parts are of any approved construction.

A guide bar is pivoted at one end by a pin, to a stationary support. The free end portion of the guide bar is pressed against the projecting end portions of the flats by means of a spring. This spring is secured between the frame and the comb-bar, which engages with a forked carriage resting on the guide bar. The stripping comb is carried by the comb-bar or comb-stock which is arranged opposite the flats in the usual manner.

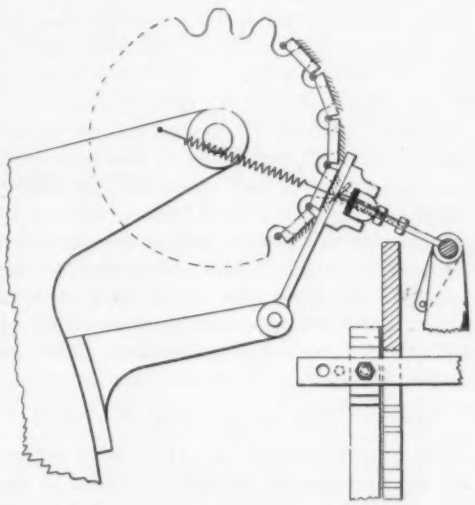


FIG. 1

FIG. 2

The comb-bar has a hole in each projecting end portion, and a pin secured to a rock-shaft, which engages with the hole. The rock-shaft is oscillated by any approved means, so that the carriage slides up and down longitudinally of the guide bar. The pin is smaller in diameter than the hole, or it is otherwise connected with the comb-bar, so that the comb-bar can slide back and forth in contact with the guide bar and in a straight line. In this manner the stripping comb is held at a uniform distance from, and slides parallel to, the carding material or wires on the flats. It never comes in contact with them, as this distance is not affected by any slackness in the chains, due to wear, nor by the accumulation of dirt or waste material between the flats and the discs which carry them.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

CONTINENTAL SUBSTITUTES FOR ABSORBENT COTTON

Consul General Julius G. Lay, Berlin, Germany

Although several firms in Germany advertise that they manufacture substitutes for absorbent cotton, such substitutes are not generally sold to the retail trade nor can they be obtained at every drug store.

Since the present European war began the demand for cotton substitutes has increased. The high prices of cotton and the possibility that they may soar higher have caused many experiments to be made with paper pulp and cellulose materials. The substitutes so far produced are generally much cheaper than cotton, but their sale has been retarded by the fact that they do not possess all of its good qualities.

"LIGNIN" HAS LARGE SALE IN BERLIN

The only substitute for absorbent cotton that has found a large sale in Berlin is the Zellstoff-Watte "Lignin" sold by Fritz Seyffert, Barbarossastrasse 32a. This particular substitute is made of pure pine cellulose and can be commercially produced much cheaper than absorbent cotton. It is chiefly used to stop bleeding. It is claimed that it absorbs blood better than cotton, but it cannot compete with that fiber as a dressing for a wound. Physicians state, however, that "Lignin" serves very satisfactorily as a second dressing.

Mr. Seyffert states that "Lignin" is made according to a secret process. The following prices are quoted: In 50-kilo (110.23-pound) lots, 76 pfennigs per kilo (8.20 cents per pound); in 100-kilo (220.46-pound) lots, 74 pfennigs per kilo (7.99 cents per pound), and 200 to 300 kilo (440.92 to 661.39 pound) lots, 72 pfennigs per kilo (7.77 cents per pound); f. o. b. Berlin. "Lignin" is sold in sheets measuring 13.78 by 23.62 inches and in packages weighing 8.82 pounds or in rolls weighing 2.20 pounds each.

Consul Emil Sauer, Goteborg, Sweden

TWO SWEDISH FIRMS MAKE CELLULOSE WADDING

There are two firms in Sweden (so far as this office was able to ascertain) that manufacture cellulose wadding from chemical wool pulp for dressing wounds. These are the Frovifors Bruks Aktiebolag, Frovi, and the Stora Kopparbergs Bergslags Aktiebolag, Falun. The latter is in the consular district of Stockholm.

The wadding is prepared in very thin sheets—like tissue paper, but crimped—and in general appears to be manufactured in the same way as tissue paper. This consulate was not able to secure details regarding the processes of manufacture, as these are held secret. The Frovifors Co., however, expressed a willingness to sell its process to an American firm.

Consul Augustus E. Ingham, Bradford, England

BOG MOSS AS A SURGICAL DRESSING

A recent article in the Yorkshire Post described in a very interesting manner the collection in Westmoreland fells—it also is found on the Yorkshire moors—of the bog moss Sphagnum cymbifolium, which is of great value as a surgical dressing. The moss is permeated with minute tubes which in a natural state hold water eight or nine times the weight of the plant, so that when it is dry it is one of the most absorbent materials known.

It is antiseptic, soft, light and cool. As very little preparation is necessary before use if it is carefully gathered—for it has only to be sterilized and placed in flannel bags—it is a very economical dressing. It has for some time been used in hospitals in this country and before the war was supplied from Germany. In German towns it is said to be a common sight to see country women with big baskets of plants going into chemists' shops to sell or exchange their goods.

METHOD OF PREPARATION

The moss is easier to pick over if the water has not been wrung from it; but, plucked in handfuls—the strands 6 and 7 inches long coming away with no particles of soil about their roots—it should be spread on the rocks or preferably on nearby bushes so that the air can get at it from above and below. In a few days it becomes perfectly dry and bleached white. It is then packed in clean cotton sacks, and though they are usually a yard long and over a foot wide they weigh only 3 to 4 pounds each. Later it has to be picked over to remove all bits of grass, bracken, rushes, etc., and is then tightly packed in sacks or sheets and sent off to be sterilized.

ENGLISH NOTES

By Our Regular English Correspondent

The drum is being beaten in the interests of technical education to the insistent tune that education will be more than ever necessary after the war. Nobody doubts that the best efforts of every kind will be wanted in the days to come, but the drumming raises no remarkable enthusiasm. The cause may partly be that those who drum loudest have an effective monopoly of the supply of textile education and are in control of the quality of the product. They can hardly extol the benefits of education without seeming to be crying up their own wares and it is certainly the case that some manufacturers are better convinced of the value of learning in general than of the particular methods in vogue in given teaching establishments. There are some even who think that textile teaching is not so good as it used to be. The apparatus of teaching has become more elaborate and its pretentions have grown, but the examiners, or the teachers, or both of them, have done something to make it unreal. Perhaps the examiners are most to blame for reducing technical education in many cases to the supply of formal answers to questions not conspicuously practical or important. Diplomas and medals—it has been sufficiently shown—have no invariable connection with practical aptitude and on that account textile education has suffered some loss of public esteem. The best advertisement for any textile school are the names of those who have made their way in the textile world and no abstract disquisitions fill the same place. The manufacturer's ideal textile teacher is the one who takes the young men to his heart, energizes them, illuminates all their practical difficulties and turns them out in a condition to meet any emergencies which may occur. So far has teaching retracted from everyday life that in some institutions lessons beginning "Now what have you boys been troubled with in the mill today?" have to be given strictly under the rose.

* * *

Export of certain classes of British-made textiles has been forbidden either absolutely or conditionally for a year past with the object of retaining an adequate home supply. Again export to certain destinations has been permitted only under license and the delays in obtaining permits have made one of the minor irritations of the state of war. A new rule is that no cotton cloth can be exported to any destination outside the British Empire except under license from the official War Trade Department, or under certificate from the Manchester Chamber of Commerce. The interference perhaps looks a small one in itself, but the transactions are myriad. In a good year about $500 million of cotton cloth are sent abroad, half of it to countries outside the British Empire, so that the possibilities of delay and misconception are by no means negligible. This mighty operation of verifying each shipment looks rather like cracking nuts with steam hammers. The principal object is understood to be to prevent fabrics suitable for aircraft from reaching the enemy and in any case they represent a miscropically small fraction of the 7,000 million yards concerned. Care is to be exerted in respect of other goods, but the chief dubitation may be expected to arise about gray goods of given counts and strength and a certain ratio of strength to weight.

Manchester exporters form an extraordinarily cosmopolitan community. Firms

of all extractions, German, Austrian, Greek, Swiss, Armenian, Arab, Portuguese, Scandinavian, French, Spanish, Balkan, Persian, Hindoo, South American, American and British to a total number of perhaps 700 are engaged. Ever since a Swiss firm was prosecuted for the shipment of what might either be Zeppelins or embroidering fabrics the Admiralty has maintained a tender interest in goods suitable for air-craft and is understood to have taken over a good quantity itself.

* * *

Disorganization consequent upon new enlistments continues steadily and, as all industries have been more or less depleted, there is competition for what remains of the labor supply. Extra inducements to draw workpeople are offered in some quarters and are viewed with disfavor by competing firms. Young people leaving school are sought in many trades and in Lancashire boys show more disposition to go to the pit-brow and qualify as colliers than to become piecers in the mule spinning mills. Knitgoods makers and knitting machinists are badly hampered for want of expert mechanics to replace those who have gone into the munitions works and the shortage of skilled repairers is apparently bound to increase. The same trouble afflicts the textile machine makers who at first could not find work for their men and now cannot find men for their work and have to be cautious in making promises as to dates of delivery.

The general position of manufacturers continues in the same way as before. Cotton people with scarcely an exception do badly and the woolen people fare remarkably well. Makers of fine worsted coatings have little to do in their own proper line, but splendid margins accrue to topmakers and spinners. The jute trade has almost unlimited work and linen is only bad in its fancy branches. In general, times are not good for makers of any highly fancy articles. These are the days of plain stuff all round and exceedingly good days for the knitting industry. The latter has benefited from the direct demands of warfare and from the closing down of German competition.

Reliable reports assert that dyewares of certain sorts are now unprocurable in Germany and that even in that country dyers are having to limit the number of shades for which orders can be taken. The news goes to bear out some opinions that were entertained in advance. In arguing over British Dyes, Ltd., some consumers strongly held that the war would clean out the whole world supply of coal tar dyestuffs and they founded upon this hypothesis the belief that for a considerable time after the war color would remain high in price. At all events prices have a long way to fall before they can be considered to be cheap aagin.

The shades that have been listed for next season by our important English concern are: Black, navy blue, dark saxe blue, nigger brown, mole, dark purple, dark beetroot, obus (dark gray), cerise, brown, old rose and myrtle. Dyers maintain their refusal to be responsible for the exact matching of shades and can hardly do otherwise seeing that there is no certainty of their having a supply of the color necessary to correct any failure in matching at the first attempt. In the circumstances designers of any sort of fancy goods rely as little upon color as possible. It does not seem irrational to expect at the end of the war a marked reaction from the enforced abstinence and a regular riot of strong colorings.

* * *

In some experiences the net addition to the British cost of production in the cotton weaving trade is six per cent on the price of the goods. This represents the burden of war upon the prices of fuel and consumable stores and in all likelihood there must presently be added an advance of five per cent. in cotton weaving wages. Orders are being turned back because of a smaller disparity in prices and in every way the increase is unpalatable to manufacturers. The named surplus is low in comparison to that in some other departments of trade, but it appears to be fairly well established in relation to the plain weaving business conducted upon the most economical principles.

Manufacturers obtaining new overdrafts

are charged now six per cent. for the use of the money and get little encouragement to use it for speculative purposes. Fractionally higher charges have been heard of in the absence of solid security and it is possible that rates have not got to the top. A common principle of bankers is to charge Bank of England rate (at present 5) plus one per cent., although more favorable terms are sometimes arranged in competition. The difference between the existing charge and the normal four to five per cent. is at any rate perceptible and is one of the matters that has to be taken into account in England.

* * *

The permission to ship limited quantities of crossbred and blackfaced wool to the United States came as a considerable relief to the congested warehouse accommodation in this country. The protracted tie-up of the railways, the arrival of unaccustomed bulks of wasty merino wool normally consumed on the Continent and the confusion incidental to delay have made handling and housing a trouble in itself. The consigners in the colonies of course want money and these considerations all tell in favor of exporting a quantity of wool. They prevail against the temptation to cheapen wool by allowing it to accumulate. As the capacity of the machinery, and not the stock of material, is the controlling factor in determining the value of manufactured goods, the objection to selling abroad is weakened. Crossbred yarn and goods, but not tops, may be shipped now to the United States, but there is no imminent likelihood of their going at low prices. In view of the premium that has been put upon yarn wool should be much the more profitable purchase for those who can find combing accommodation in America.

* * *

A curious communication intercepted by a British Government of a different day may be compared with such as have been passing lately. It appears to relate to textiles and to promise good things to manufacturers although it is not so skilfully worded as to ward off all suspicion of a mystery:

"Mr. Hodges is a very honest man and would venture all he is worth to do good to clothiers that make soft cloth and the contrary to those that make hard, but would enter no suit-at-law. . . . He promises rewards for good wool."

The message came ostensibly from Spain with whom relations were anything but easy in the times round about 1596. The de-code shows the nature of the intrigue. "Hodges" was the Cradinal, those that make soft cloth were Catholics, those that make hard were Protestants. When the sender wrote suit-at-law he meant war. "Good wool" was a euphemism for information. The original of this letter has been preserved and although in this case textile terms have been used to cover diplomatic meanings the case was sometimes another way about. The painstaking people who carried on the illicit trade in silks two or three centuries ago had a code in which "Garance" (madder) stood for the goods, boats became "carts" and an atmosphere of obfuscation was worked up by the misuse of geographical names.

* * *

Shipments of textiles to America during August have been lower all round than in the first month of the war, except in the case of cotton yarn. This article, it may be observed, is the only one in which business during the eight expired months of the year has not decreased. No particulars of the nature of the yarn are to be found further than that seven-eighths of it is unbleached and undyed and that its average price is about 52 cents. Carded woolens are shown by the appended table to have declined fifty per cent. in quantity during January to August, but the reduced yardage shown for 1915 is in point of fact double that of the equal period in 1913. The average value of the worsteds and stuffs is about 34 cents, showing a marked preponderence of dress goods. The cost of making these last has been increased by the high profit paid to the spinner on yarn, enhanced costs of weaving running up to 30 per cent. in some cases and high prices for dyeing. There are some grounds for saying that worsted fine cloth manufacturers would be glad of American

orders, but dressgoods people are not short of work and not able to quote low or deliver promptly.

Exports U. K. to U. S.

Eight months ended 31 August

	1914	1915
Cotton yarn .....lbs.	3,973,100	4,056,400
Cotton piece goods ..yds.	40,076,000	30,875,100
Worsted yarn .....lbs.	1,523,400	465,200
Woolen tissues .....yds.	6,329,200	2,940,300
Worsteds and stuffs ..yds.	22,585,600	13,624,800
Carpets .....sq. yds.	346,000	293,600
Spun silk yarn .....lbs.	461,493	432,802
All-silk broadstuffs ..yds.	127,474	110,745
Mixed silk broadstuffs yds.	948,135	411,946
Jute yarn .....lbs.	1,294,200	250,900
Jute piece goods ....yds.	44,874,800	31,792,400
Linen yarn .....lbs.	1,754,600	1,173,800
Linen piece goods ...yds.	75,717,500	49,976,000

* * *

A scientist who has been taking notice of the conditions of factory life in Lancashire comes away impressed with the inability shown by most concerns in grappling with the problems of artificial lighting. The subject has been reported on by a committee and summarized in a separate article in this magazine. Natural lighting is on the whole well studied, although there is on record an instance in which a ground-floor spinning mill, built at great expense after careful planning, was found to have its only windows facing South and West. The scientist thought our women operators had adapted their clothing to mill exigencies better than men had, in which may be read approval of the shawl and clogs. Professor Moore, while holding that too much had been made of shuttle-kissing as a disseminator of disease, felt inclined to recommend that weavers suffering from chronic colds should be grouped in rows together at one end of the weaving shed. Shuttle-kissing is not the only subject on which there has been a factitious agitation in this country. Subjects are seized, magnified and lifted out of their surroundings by professional trade union leaders, with the result occasionally that they receive rather less attention than would readily be spared for moderate demands.

* * *

Various proposals for the retributive treatment of German goods after the war have been mooted more or less irresponsibly and some, affecting such articles as dyestuffs, stand a chance of being seriously entertained. Vague ideas of a commercial agreement between the Allies are heard of now and again, but nothing definite can be said to hold the field. Party warfare over the issues of free trade and protection is in abeyance and opinion as to the future of British fiscal policy is in suspense.

TEXTILE ANALYSIS AND FABRIC VALUE DETERMINATION

Editor Textile World Record:

The writer has used the accompanying chart with very good results. It is a rapid and accurate method of computing the wholesale price per yard of cotton back satins. The method is very simple and can easily be made by one not experienced in textile analysis. A chemical balance is the only apparatus used for the determination.

This chart is made expressly for piece dyed cotton back satins in light and medium dark colors. Blacks vary somewhat from colors and necessitate the use of a separate chart, as do also yarn dye cotton back satins.

As piece dyed satins are the cheapest and employed in the largest quantities, a method which will give accurate results in a short time cannot fail to be useful.

A square of the fabric is cut by the aid of a cardboard guide to the following dimensions: 2 inches × 1.48 inches. A piece of material of this size will give the ounces of cloth per square yard directly, as the number of grains necessary to balance it are equal to the number of ounces per square yard. For example, if a piece of cloth of this dimension weighs 3.9 grains, the ounces per square yard are 3.9.

The silk is carefully separated from the cotton with the aid of tweezers and the cotton threads are weighted. This weight deducted from the ounces of cloth per square yard gives the ounces of silk per square yard, which is all that is necessary to know in order to use the chart. The cotton is weighed as it forms the greater portion of

the fabric and is more easily handled, thereby lessening the percentage of error.

The value of zero is changeable and as the market on satins rises or falls the value of zero is figured accordingly. At this writing the value of zero is 27.5 cents. The basic value is derived from a collection of cotton back satins sent to me by several large houses and which I analyzed. As the wholesale selling price was known, the value of zero was easily established. In order to keep this chart up to date, the ounces of silk should be determined from new samples and prices every other month.

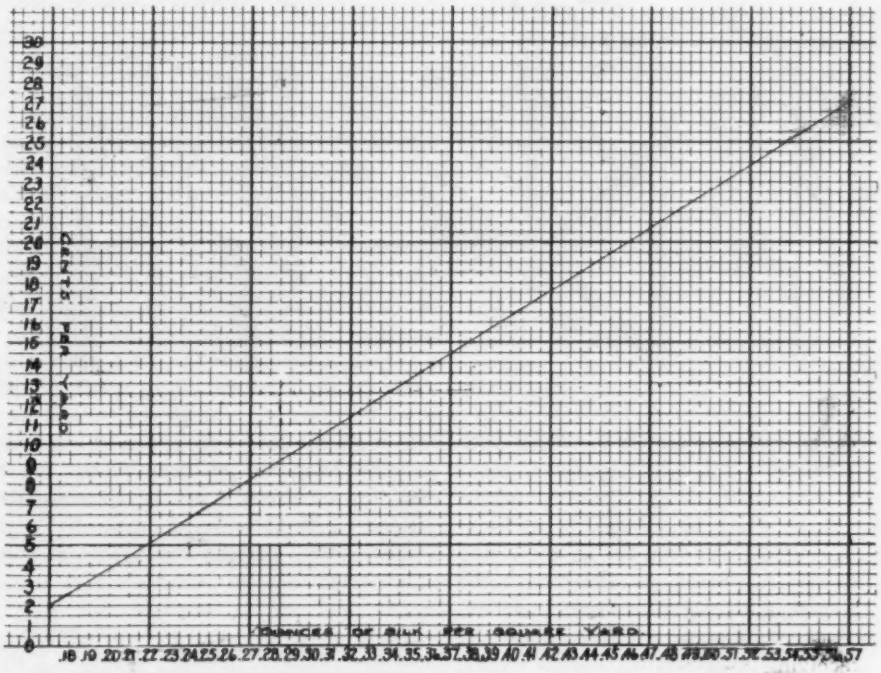
Suppose the ounces of silk per square yard is found to be .51. This point is located on the diagonal line. Then tracing across the horizontal line to the margin the number 23 is found. Zero, which at present is 27.5 cents plus 23 equals 50.5 cents. In other words the wholesale selling price of this satin is 50.5 cents per yard, 36 inches wide.

The writer has had occasion to make a great many analyses of cotton back satins, and while looking over the tabulated results he was forcibly impressed by the fact that the ounces of silk per square yard varied in the same ratio as the price of the material. From this idea and the data on hand the chart was evolved.

William J. Schepp,
Chief Chemist and Textile Expert,
National Cloak and Suit Co., New York.

NEEDLE THREADING DEVICE

The device shown at Figs. 1, 2 and 3, which has recently been patented, is intended for threading the needles of sewing machines.



A CHART FOR COMPUTING THE WHOLESALE PRICE PER YARD OF COTTON BACK SATINS

Fig. 1 is a front view in elevation of a needle threading device, Fig. 2 is a longitudinal sectional view thereof on a considerably larger scale, Fig. 3 is a perspective view of the block members forming the casing of the device showing the same as it would appear when separated.

One, shows the casing of the needle threading device comprising the two strips 2 and 3, each of which is provided interme-

diate its upper and lower extremities with the semi-cylindrical recess, 4, and has formed in one of its faces, the depression, 5, which is arranged to cooperate with the depression, 5, formed in the cooperating element to form a depression in which the flared portion of the threading mechanism rests.

The threading attachment, 6, comprises the funnel-shaped member, 7, provided with the reduced opening, 8. A tubular extension, 9, is formed at the reduced end of the funnel-shaped member and is provided with an enlarged bore, 10, which communicates with the reduced opening, 8, and forms a shoulder at the point, 11, as clearly shown in Fig. 2. A transverse aperture, 12, is formed in the tubular extension, 9, adjacent to the point, 11, and is arranged to receive the reduced tubular extension, 13, formed on the needle receiving member, 14. This needle receiving member comprises the cylindrical body portion, 15, on which the reduced extension, 13, is formed, having the flanged upper end, 16, arranged to form a guide for the end of the needle.

The lower end of the needle, 17, is arranged to seat in the recess, 18, formed in the lower wall of the tubular member, 9, and thereby bring the eye of the needle in direct alignment with the reduced opening, 8.

The device is first assembled as illustrated in Fig. 2 and the notched edges of the blocks, 2 and 3, are then secured together in any suitable manner whereby the device will assume the position shown at 1. The needle is then threaded into the needle receiving member, 14, and upon forcing the same downwardly the flat portion of the eye of the needle is held between the reduced portion, 13, and the shoulder, 11, thus insuring the proper registration of the eye with the reduced aperture, 8. A thread is then passed through the reduced aperture and then through the eye and upon withdrawing the needle from its position within the needle holding member, it will be apparent that the thread will be carried upwardly and outwardly, thus placing the needle in condition for use.

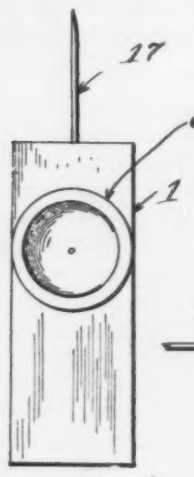


FIG. 1

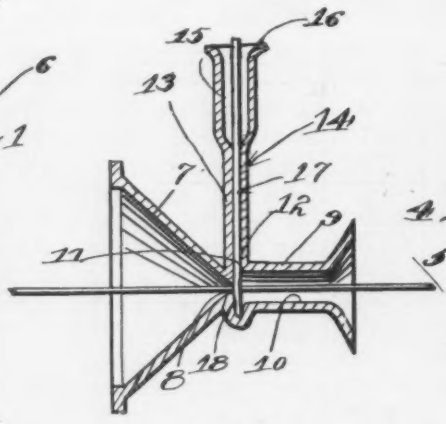


FIG. 2

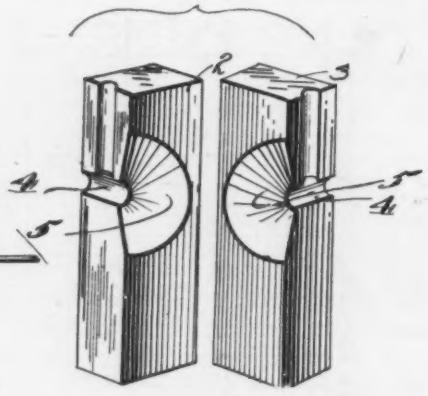


FIG. 3

The total value of the exports of ribbons from Switzerland in 1914 was $9,176,342, compared with $8,119,067 for 1913. Of the total for 1914 ribbons to the value of $1,133,230 went to the United States, against $988,714 for 1913.

Egypt's purchases of indigo dwindled to 1,373 pounds in the four months ended with April, 1915, as contrasted with imports of 80,843 pounds and 104,390 pounds in the corresponding periods of 1914 and 1913, respectively.

THE PROBLEM OF MILL LIGHTING

BY WESSEX

The question that an English Departmental Committee set out to solve was whether a minimum intensity of lighting could and should be fixed for workshops and factories. The answer is an affimative. After taking evidence from 50 witnesses, visiting 85 works, making 4,000 measurements of illumination and conducting a variety of laboratory experiments the opinion has been formed that factory lighting, like factory heating or ventilation, lends itself to precise measurement and definition. It is not regarded as feasible to lay down laws saying what intensity of light is required for each separate branch or individual piece of work. The amount of light necessitated by the nature of the work in progress is set aside as a thing apart. What the Committee have felt possible to do is to prescribe a minimum strength of lighting over the "working areas" and the approaches leading to them.

The report of the Committee explores the different aspects of the question in a manner lending it permanent value as a contribution to general knowledge of the subject. It goes back to first principles and to the essential distinction between illumination and surface brightness. Illumination is of course light received and brightness is light returned or reflected from the object. Illumination derives from the primary source of light, whether natural or artificial, and it loses more or less according to the extent to which it is absorbed by the surrounding objects. The strength or candlepower of the initial lighting system, the distances from the object and the angle at which the rays strike are the controlling factors. It is not therefore permissible to measure the strength of light entering the room and to calculate the floor space or the cubic contents the average illumination. Light diminishes as the square of the distance from the illumination and hence the light at any given spot has to be measured at that place. By the use of a portable instrument, the photometer, its value can be recorded and be read in foot candles, even as power can be measured in foot-pounds. The foot-candle, be it understood, is the illumination given by a standard candle at one foot distnace and with its rays falling at right angles.

With this explanation the decision that in all "working areas" the minimum lighting on the horizontal plane should not be less than 1.25 foot-candle is the more clear. In parts of factories other than working areas and over which employed persons must pass, the flow illumination should not fall below 0.1 foot-candle. Outdoors at night at the approaches to work the illumination at floor-level ought to be not less than .05 foot-candles. The standards are well below those existing in modern factories and are intended for the improvement of the unsuitable premises in which some textile and other work is carried on.

The reason for official investigation is based, of course, upon the safety and health of those employed. Safety comes first and there is no room to dispute that darkness is a predisposing cause of accidents to the person. The Accidents Offices Association to which most of the insurance companies undertaking workmen's compensation are affiliated has declared:

> The rates of premium are based upon the assumption that the lighting is normal; if upon survey this is found not to be so the insuring company would specify its requirements, or deal with the case by rating.
>
> The effect of deficient or bad lighting upon a risk is distinctly prejudicial in varying degrees from the accident point of view.

Textile operatives have urged defective lighting as a reason for accidents, notably in the cotton blowing rooms, and the statistics of accidents occurring in textile factories go to show that the difference of lighting does exhibit itself in returns. There are no statistics to show the comparative rates in factories well lighted and badly lighted, but the figures for the summer months can be compared with those of the winter. The variation is shown in charts I and II, the first relating to accidents caused by power-driven machinery, the second to accidents due to persons falling. The basis is the official record of accidents during fourteen months, 1913-14, and although the curves are not perfectly condusive it is at all events clear

that there are more falls in the dark months than in the light ones. Carrying the reasoning forward, it is to be supposed that there is more falling in dimly-lit mills than in brighter ones. From these figures approximate computations of the hourly accident rates in British textile mills have been deducted. It is calculated that the accidents arising from machinery are at the rate of

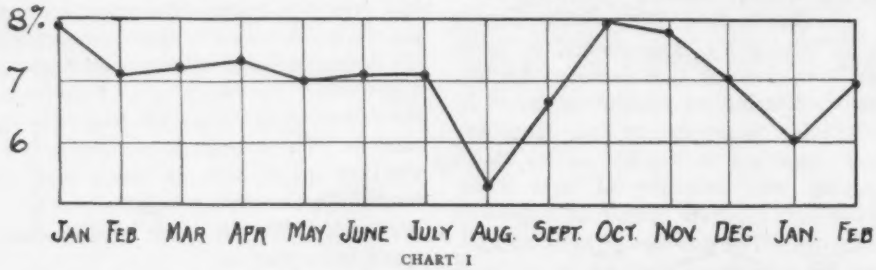


CHART 1

3.09 per hour in daylight and 4.16 per hour in artificial light. In other words, that the rate rises 35 per cent. Personal falls are estimated at .58 per hour in daylight and 1.01 per cent. in artificial light; implying an in-

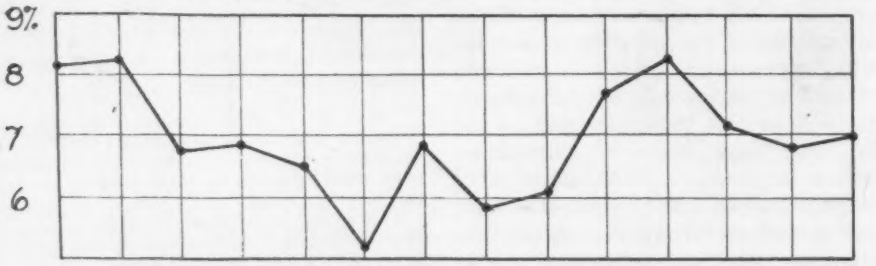


CHART 2

crease of 76 per cent. During the hours of artificial light it would appear that there is a rise of 46 per cent. in the occurrence of accidents of all kinds in British textile mills.

The particulars certainly invest the questions of illumination with importance apart from the effect upon the quantity or quality of the work done under the different conditions. The evidence of any detriment to health from poor lighting is less impressive. Complaints of ailments due to poor light have come from the bleaching trade. A Rochdale doctor has testified to the occurrence of frontal and occipital headaches arising from eye-strain among weavers. Comment has been made on the prevalence of short sight among workers of particular classes but the evils are limited. Darkness is frequently accompanied by dirt, but it is not in textile factories that unsanitary dirt has been most troublesome. Darkness is assisted or caused by dirt, notably in the failure to wash windows or to whiten reflecting surfaces whereby the absorption of light might be avoided. The practice of a good many English mills in arranging to have the windows washed periodically by a contractor may be noted in passing. There is nothing to show that it was a textile mill in which production was found to be 12.20 per cent. less in artificial than in daylight; or in which production increased 11.4 per cent. when one artificial light was exchanged for another, but it will not be doubted that good lighting has its effects.

Obviously there are textile employments in which good lighting is exceptionally important. Although the official list of such cannot be deemed exhaustive it is given:

Processes requiring exceptionally good light (on account of fineness)

Cotton weaving:
- Colored goods.
- Jacquard weaving.
- Drawing in and twisting.

Linen weaving:
- Examining and lapping.

Woolen and worsted:
Examining, picking, mending, etc.
Silk throwing.
Lace making and mending.
Net lace break repairing.
Knit goods:
Linking-up, running-on and hand embroidery.

terials of different colors with threads dyed to match. The results were obtained under a direct lighting system arranged not to trouble the eye by glare. The following are the results ascertained:

	Co-efficient of reflection	Minimum satisfactory direct illumination for continuous work	Foot-candles required for comfortable and ample lighting
White calico	97 per cent	1¼ foot candle	0
Holland (brown	52 "	1¼-1½ "	0
Slate	12 "	1½-2 "	0
Purple (with strong sheen)	8 "	2-2¼ "	0
Black	2-4 "	4 "	5-6
Black velvet	0 "	4 "	5
Embroidery	11 "	2 "	3

The following are noted as departments in which the lighting is often inadequate:

Cotton blowing rooms.
Cotton waste breaking rooms
Cotton passages.
Woolen carding and scouring rooms.
Warehouses and stores.

In pursuing the general objects of the inquiry some practical experiments were made to illustrate the varying necessities of lighting relatively to the class of work in progress. Members of the staff of the National Physical Laboratory dyed samples of calico to four shades of blue ranging from a very pale shade down to a blue so deep as to be almost black. While an assistant gradually raised the lighting an observer fixed his eyes upon the samples until the light just enabled him to distinguish the warp and filling threads in the fabric. At this point the lighting was left and its intensity recorded by instruments. The effect was to prove that ten times more light may be needed in working upon dark than upon light-colored materials. A record of the readings obtained is set out below:

An experimental chamber to represent a workroom was fitted in the National Laboratory with whitened walls and ceilings, with three alternative systems of illumination and black curtains which could be drawn across the walls. The three illuminants were: (1) unobserved filament electric lamps with the ordinary opal shade; (2) similar lamps with inverted reflectors to reflect the illumination from the ceiling; and (3) similar lamps shielded to protect the eye from direct rays and throw down direct light upon the tables beneath. The effect of drawing the curtains and then of diminishing the amount of reflected lighting was briefly this: In the center of the room the diminution was 25 per cent. using the ordinary lamp (1); 7 per cent. using the inverted reflector (2); and negligible in the case of the lamps shielded by parabolic shields (3). These results are independent, of course, of conditions after existing in practice, as when filaments or mantles have begun to deteriorate, or when dust becomes a source of lost light, or when the placing of and the shadows cast by ma-

	Observer A		Observer B	
	Foot-candles Illumination	Corresponding Surface brightness	Foot-candles Illumination	Corresponding Surface brightness
(a) Very light blue calico	1.4	.7	1.	.64
	1.65	.9	8.	.52
	1.4	.7	0	0
(b) Light blue "	2.	.75	1.9	.72
	1.7	.70	1.3	50
(c) Full blue "	4.8	.63	4.	.52
	5.8	.86	3.6	.48
(d) Dark blue "	12.	.62	10.5	.60
	12.5	.68	14.	.85

An experiment to similar purpose was tried in another way by borrowing a number of seamstresses and setting them to sew machines introduce complications. They are, however, valuable in their bearing upon an essential part of all lighting problems.

On the important question of daylight some ideas can be picked up from the report. It is, for example, found as a general rule that the saw-tooth roof-lit system of building, as commonly used for weaving mills, gives a daylight factor of round 2 per cent.; in other words the light inside is about one-fiftieth of that which would reach the area if the walls and roofs were removed. The roof light is advantageous for weaving because the fabric is horizontal and the rays are vertical and thus give the best effect. In the storied side-lit buildings used for spinning the daylight factor in the center of the room in some bad conditions is only .01 per cent.; or one-tenthousandth of the intensity of the light outdoors. Lateral lighting is advantageous for watching vertical threads for in this case also the lighting is at right angles to the object viewed.

From a number of daylight observations made in weaving sheds mainly in the Bolton and Darwen districts of Lancashire a few examples may be culled to illustrate the range of illumination,. The daylight factor was measured at the loom, being affected, of course, by the proportion of glass in the roof, the cleanliness of the windows, the presence of shafting, heavy harness or other obstructions. Out of twelve instances the best two showed:

Maximum	Minimum	Mean
9	2.3	5
7	1.7	4

The two worst showed:

Maximum	Minimum	Mean
.5	.04	.20
.5	.11	.30

The medium cases showed a mean factor of from 2 to 3 which is apparently a good average illumination at the loom.

The intensity of artificial lighting in weaving sheds was recorded in foot-candles, and very much the most brilliant lighting showed:

Maximum	Minimum	Mean
12.	6.5	8.7

The poorest record was:

Maximum	Minimum	Mean
1.4	.73	.98

The generality of readings showed a mean of 1 1/2 to 2 1/2 foot candles.

In the same way readings were registered in factories in which various sorts of spinning is done. In two cases the daylight factor at the point of work was represented by a minimum of zero and by microscopic fractions in certain other cases. In a cotton mule spinning room of 38,600 square feet in floor area the maximum was 11, the minimum .03 and the mean 3. No higher mean is reported in the 21 instances tested, but the same mean is recorded in one room that has a maximum of 6 and in another with a maximum of 4. The premises are of so mixed an order that general conclusions may be fallacious, but it can be said that in six the mean daylight factor was 2 or over; in seven was between 1 and 2; and in eight was under 1. It would seem to be possible to carry on some sort of cotton ring spinning in extraordinarily weak daylight to judge from the data about a small and unrepresentative room in which the utmost daylight is .5, the minimum .01 and the mean .17 per cent.

The records of artificial lighting in the same group of spinning rooms shows a similar diversity. One stands out from all the others with a maximum of 11 foot-candle illumination at the point of work and, at the other end of the scale, is a room with .21 at the best. The mean ranges all the way down from 5.6 to .11. Out of twenty-one specimen instances three show a mean intensity of 2 foot-candle power or over; six have 1 foot-candle or more and in twelve the lighting is less than 1 as a mean. Presumably such discrepancies as these, unaccompanied it may be supposed by any unduly heavy casualty lists, had their influence in deciding the committee to keep away from the thorny question of the amount of light necessitated by the nature of the work. Self-interest assists to secure at least as much light as will enable the work to be done and nowdays nobody ignores the advantages of a good light, although in England at one time mill windows were evidently not regarded as profit-making accessories.

Specified minimums of floor and passage lighting are apparently in force in no country as yet and for such interest as it may

possess a summary is given of the regulations in several foreign countries:

Austria—Workrooms to be as light, as clean and free from dust as possible.
Belgium—All workrooms to be efficiently lighted.
Denmark—Adequate as regards both the carrying on of the work and the visibility of the machinery and other objects present.
France—All indoor premises, their annexes and especially the passages and stairways shall be adequately lighted.
German Empire—In particular care must be taken to provide adequate lighting.
Holland—So far as practicable must be adequately lighted during the period of employment. Provision must be made for excluding direct sunlight in premises where embroidery (jewelry and certain other processes) are carried on.
Italy—Lighting of a nature to allow the machinery and means of transmission to be clearly distinguished.
Norway—Adequately in such a way that all moving parts may be clearly distinguished.
Sweden—Satisfactory illumination shall be provided.

COTTON MANUFACTURING IN CHINA

By Robert A. Morgan, Shanghai

Someone has said that Americans are the most extravagant people in the world. I do not know whether this applies to the cotton mills or not. Good management, the efficiency of the skilled workmen, improved machinery and labor saving devices may make the American cotton industry an exception to the rule. The fact remains, however, that Americans do not approach the economic status of the Chinese. A Chinese family of mill workers could live for a month on what a mill girl in the States would spend for a spring hat. An overseer of one of the departments in a Chinese mill would be glad to receive for his monthly salary what the American mill manager would spend for an opera ticket. This does not prove that the Chinese are underpaid. Their wages are good in comparison with other public workers in China. They could very well use more money, as it is a known fact that a man's wants increase with his pay-roll, but the ordinary life of the Chinese mill worker is far from an unhappy one. They are a well satisfied class of people.

It is often said that the Chinese rate of wages is very low; below "starvation wages" in the opinion of people of relatively high incomes. In order to make a comparison in wages with China, however, the money valuation must be considered. The American dollar at the present rate of exchange is worth about two and one-half times the Chinese dollar. One U. S. gold dollar equals in commercial value two dollars and fifty cents in Chinese currency, but the buying value of one Chinese dollar to the Chinese is fully equal to the buying value of one U. S. gold dollar to Americans. Keeping this in mind and also the cheapness of the essentials of life, and the abundance of labor, the wages in China assume a different aspect.

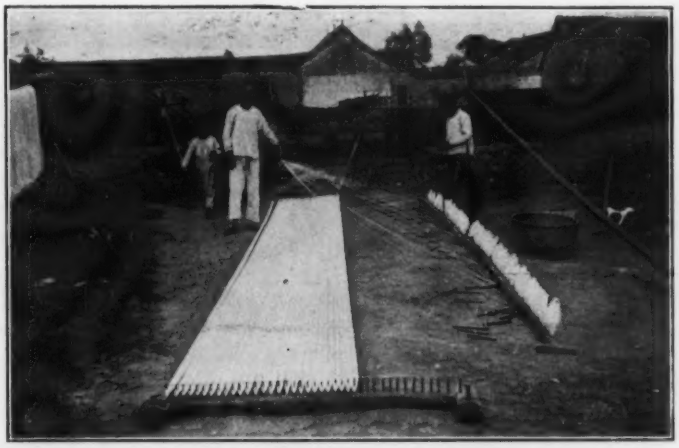


FIG 1. CHINESE OPERATIVES PREPARING A WARP FOR THE NATIVE LOOM

The average daily wage of an adult male worker in a Chinese cotton mill is approximately 50 cents, and that of an adult female worker is 30 cents, equal in U. S. gold to 20 cents and 12 cents respectively. The wages of overseers, second hands and office help are proportionately higher. There being no age limit here the wages of children are lower. The day laborer or "coolie" gets on an average about 25 cents a day, or even as low as 10 cents if his "chow" is furnished him. By "chow" is meant his food, which consists of three bowls of rice. His contract sometimes includes "chow" with his wage. It is not the custom to furnish the mill workers food, but some mills give them hot tea. Wages and extras vary in different localities, but a fair average would show a schedule for Chinese mill workers about as follows in Chinese currency:

FIG. 2. CHINESE COUNTRYMEN BEAMING A WARP OF COTTON FOR HAND WEAVING

Scutcher tenders	per day	$0.32
Card hands	per day	0.31
Drawing	per day	0.18
Roving	per day	0.26
Spinning	per day	0.24
Reeling	per day	0.20
Spooling	per day	0.22

FIG. 3. WARP DRESSING BY NATIVE CHINESE WEAVERS

Warping	per day	0.46
Slashing	per day	0.50
Weaving	per day	0.18
Cloth	per day	0.32
Number One	per month	15.00
Schroff	per month	20.00

Chinese mills are generally enclosed with high brick walls. In addition to the regular

mill buildings, there are warehouses, called "go-downs," and a large terrace called the "compound." These contain offices and residences for the head men. The salary of the heads of the departments includes board and lodging. This is a very economical arrangement for both the mill and the foremen, as feeding the men in large numbers decreases the per capita cost and insures their being on the job at all times.

FIG. 4. QUILLING BOBBINS FOR THE SHUTTLE

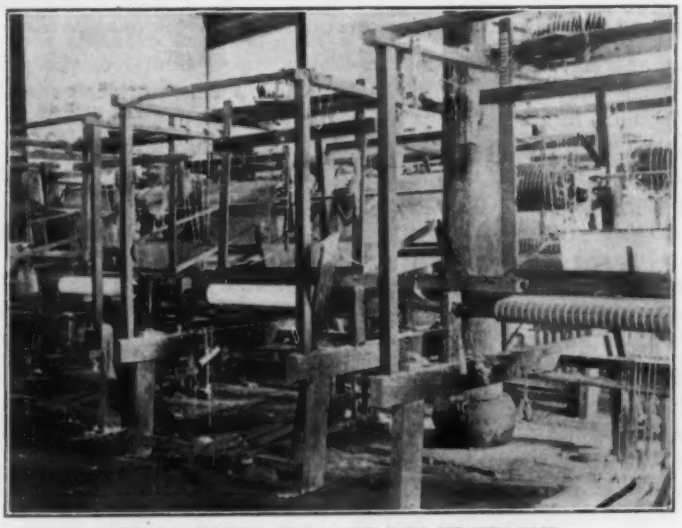


FIG. 5. INTERIOR OF A NATIVE HAND WEAVING SHOP

An overseer in a Chinese mill is called a "shroff," which means "head," and indicates he is a man who uses his head instead of his hands. The shroff never lays his hand to actual work, not even so much as to shift a belt or pick up a bobbin from the floor. He is in the gentleman class and may be distinguished from his workmen by his distinctive dress. Both men and women wear a kind of trousers. The working people dress in cotton dyed indigo blue, while the shroff wears a long silk coat hanging straight from the shoulders to half way between the knee and ankle. This buttons at the side. On his head is worn a black silk skull cap. The sleeves of this coat are very long, and it is a favorite repose of this distinguished gentleman to lock his arms be-

fore him by inserting the hand of one into the sleeve of the other, and to stroll sedately through the room. The shroff is seldom a practical man. His duties are rather to keep records, make reports, preserve order, employ operatives, etc. His impassive countenance and gentle, yet proud demeanor serve him well for this purpose.

The practical side of the room supervision is performed by the "Number One." This man is generally one who has risen from the ranks by natural mechanical ability. It is the duty of Number One to make all changes in the gearing, to repair and replace broken parts and test or "size" the product of his room. In a card room there will be a Number One for each department, carding, roving, etc. It is the duty of this man in the carding department to grind and set the cards.

A large part of the textile industry of China is still in the hands of the natives who practice the primitive methods as shown by the accompanying illustrations. Fig. 1 shows the native Chinese making a warp for the hand loom. The bamboo bobbins are placed on a frame and the yarn is wound on pegs in another frame as shown by the man walking between the pegs. This warp is twenty yards long. On either side can be seen the skeins of native dyed yarn hanging on bamboo poles to dry. A large proportion of the yarn used in the hand-weaving trade is spun by hand.

Fig. 2 shows the Chinese countrymen beaming a warp of cotton yarn. The beam is a slatted cylinder with star wheel ends and is held by two men who turn the beam and walk along the path as they wrap the warp. An extra hand, generally a woman, is used to keep the lease straight.

Fig. 3 shows the women applying the size to the warp. This is a variable commodity, generally a preparation of tallow and vegetable oils and a starch solution. The illustration shows that the women are hampered by their bound feet.

Fig. 4 shows the Chinese woman quilling weft bobbins for the hand loom. The apparatus is similar to the primitive spinning wheel. This work is generally done by the older women.

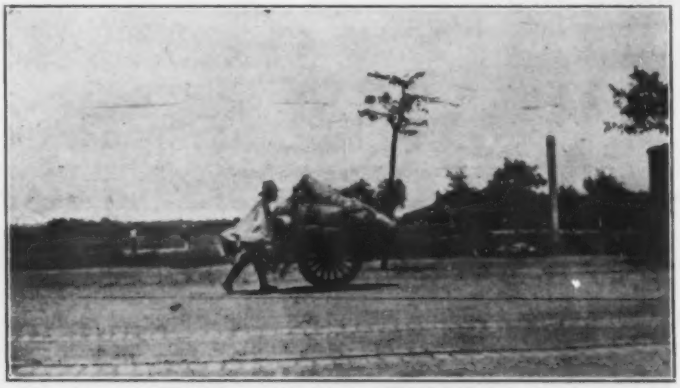


FIG. 6. A CHINESE WHEEL-BARROW COOLIE CARTING RAW COTTON TO A SHANGHAI MILL

Fig. 5 shows the interior of a native hand weaving shop. The looms are like the hand looms used centuries ago. Some have dobbies and many treadles which are operated dextriously by the tiny feet of the Chinese women. Here at least is one place where their bound feet serve them well. The smaller the feet the more narrow treadles can she work, and therefore the greater her wage.

Fig. 6 shows a wheelbarrow coolie carting raw cotton to a Shanghai mill. This is the principal means of transportation in China. It is wonderful the amount a native can carry on this single wheeled wagon. Often more than a thousand pounds is loaded on it. Drays loaded with cotton, bundles of skein yarn and other commodities are also propelled by the coolies. They are a hardy people and their diligence under such trying conditions is worthy of better rewards.

"STRAIGHT LINE" TEXTILE CALCULATIONS

BY SAMUEL S. DALE

(This Series of Articles Began in July, 1915)

WEIGHT FROM LENGTH AND COUNT.

This calculation is of common application in finding the amount of material required for a given quantity of goods. Following is the formula with the fixed weight count:

Length ÷ (count × hank) = weight

Ex. Find weight of 3,200 yards of 5 run yarn. The run count indicates the number of 100-yard lengths per ounce.

3,200 ÷ (5 × 100) = 6.4 ounces.

The same result is obtained by using the 1600-yard lengths per pound.

3,200 ÷ (5 × 1,600) = .4 pound (6.4 ounces).

The facility with which the calculation is made with the run count has led to the practice of reducing other counts to the run basis for this purpose.

Ex. Find weight of 8,400 yards No. 60 worsted yarn.

8,400 ÷ (60 × 560) = ¼ pound, or

8,400 ÷ (60 × 35) = 4 ounces, or

60s worsted = 21 runs.

8,400 ÷ (21 × 100) = 4 ounces.

Ex. Find the weight of 3,600 yards of 2/32s linen yarn.

16s linen yarn measures (16 × 300) 4,800 yards per pound.

3,600 ÷ 4,800 = ¾ pound, weight of yarn, or

16s linen = 3 runs.

3,600 ÷ 300 = 12 ounces, weight of yarn.

Ex. Find weight of 640,000 yards 2/40s cotton yarn.

640,000 ÷ (20 × 840) = 38.1 pounds.

When the length is given in hanks the weight is found by dividing the number of hanks by the count (hanks per unit of weight).

Ex. Find the weight of 288 hanks of No. 36 cotton yarn.

288 ÷ 36 = 8 pounds.

When the length is expressed in other units this method may be used by first reducing the length to hanks.

Ex. Find the weight of 134,400 yards of 24s worsted yarn.

134,400 ÷ 560 = 240 hanks.

240 ÷ 24 = 10 pounds.

Ex. Find weight of a worsted warp 400 yards long made with 3200 ends of 2/36s.

3,200 × 400 = 1,280,000 yards of yarn in warp.

1,280,000 ÷ 560 = 2,286 hanks.

2,286 ÷ 18 = 127 pounds.

The exception in numbering spun silk yarn consists in placing the count first and having it indicate the size, not of the single yarn, but of the ply yarn. Thus "15/2 spun silk" indicates that the yarn is 2-ply and that the 2-ply yarn is equivalent to No. 15, the count of the single strand being No. 30. Likewise "10/3 spun silk" indicates that three strands of single 30s yarn have been twisted together, making the 3-ply equivalent to No. 10.

Ex. Find the weight of a spun silk warp 240 yards long, having 3000 ends of 12/2 yarn.

3000 × 240 = 720,000 yards of yarn in warp

720,000 ÷ 840 = 857 hanks

857 ÷ 12 = 71½ pounds.

Ounces per Yard, Woolen Cloth:

Ex. Find weight per woven yard and per finished yard of a woolen thibet made as follows: 2,300 ends 3½ runs, 82 inches wide in loom, 32 picks 4 runs. Take-up in weaving, 8 per cent. in warp, 5 per cent. in filling; shrinkage in length in finishing 12 per cent.; in weight, 15 per cent.

2,300 (ends or yards) ÷ .92 = 2,500 yards warp per yard of cloth.

(82 × 32) ÷ .95 = 2,762 yards filling per yard of cloth.

2,500 ÷ 350 = 7.14 ounces warp.

2,762 ÷ 400 = 6.90 ounces filling.

Per woven yard 14.04 ounces.

As the cloth shrinks 12 per cent. in length in finishing, one yard of cloth from the loom will measure but .88 yard finished. The woven weight of this .88 yard finished is 14.04 ounces. The woven weight per finished yard is therefore:

14.04 ÷ .88 = 15.95 ounces, woven weight per finished yard.

This would be the actual weight per finished yard were it not for the loss in weight (15 per cent.) in finishing. This reduces the finished weight to 85 per cent. of the woven weight:

15.95 × .85 = 13.56 ounces, finished weight per yard.

Yards per Pound and Ounces per Yard, Cotton Cloth:

Ex. Find yards per pound of a cotton cloth made as follows: 90 ends 30s cotton per inch, 40 inches in loom, 70 picks 48s cotton per inch. Take-up 6 per cent. in warp and 5 per cent. in filling. Gain of 25 per cent. in weight due to sizing.

(90 × 40) ÷ .94 = 3,829 yards 1/30s warp.

(70 × 40) ÷ .95 = 2,947 yards 1/48s filling.

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30s cotton = 15¾ runs
48s cotton = 25.2 runs.
3,829 ÷ 1,575 = 2.43 ounces 30s warp.
2,947 ÷ 2,520 = 1.17 ounces 48s filling.

Per woven yard 3.6 ounces.
3.6 + .9 (25 per cent) = 4½ ounces per yard, yarn and sizing
16 ÷ 4½ = 3.55 yards per pound.

Ex. Find yards per pound of cotton cloth 36 inches wide, 60 × 80. Average count No. 25½; average take-up 6 per cent.

(140 × 36) ÷ .94 = 5,361 yards yarn per yard of cloth.
No. 25½ yarn measures 21,420 yards per pound.
21,420 ÷ 5,361 = 4 yards of cloth per pound.
This problem can also be solved as follows:
No. 25½ yarn = 13.39 runs.
5,361 ÷ 1,339 = 4 ounces per yard of cloth.
16 ÷ 4 = 4 yards per pound.

Ounces per Yard, Worsted Serge:

Ex. Find weight per woven and finished yard of a piece dyed worsted serge made as follows. 3,500 ends 2/32s, 68 inches wide in loom, 52 picks 2/32s; take-up 7 per cent. in warp, 5 per cent. in filling; shrinkage in length 2 per cent; in weight 11 per cent.

3,500 ÷ .93 = 3,763 yards warp yarn per yard of cloth.
(68 × 52) ÷ .95 = 3,722 yards filling per yard of cloth.
2/32s worsted = 5.6 runs.
3,763 ÷ 560 = 6.72 ounces warp.
3,722 ÷ 560 = 6.64 ounces filling.

Per woven yard 13.36 ounces.

As the cloth shrinks 2 per cent in length in finishing, one woven yard will measure .98 yard finished, of which the woven weight is 13.36 ounces. The woven weight of 1 finished yard is therefore:

13.36 ÷ .98 = 13.63 ounces, woven weight per finished yard.

The cloth shrinks 11 per cent. in weight in finishing. The weight per finished yard will, therefore, be 89 per cent. of the woven weight:

13.36 × .89 = 12.13 ounces per finished yard.

Ex. Find weight of woolen warp yarn required for 20 cuts of cloth each dressed 44 yards long, 1,800 ends 3 run yarn.

1,800 ÷ 300 = 6 ounces yarn per yard of warp.
44 × 6 = 264 ounces (16½ pounds) per cut.
16½ × 20 = 330 pounds, weight of warp for 20 cuts.

Ex. Find weight of woolen filling required for 18 cuts cloth, each 41 yards long, woven 71 inches wide, 42 picks 4 run yarn. Allow 5 per cent. for take-up.

(71 × 42) ÷ .95 = 3,139 yards of yarn per yard of cloth.
3,139 ÷ 400 = 7.85 ounces per yard.
41 × 7.85 = 322 ounces (20.1 pounds) per cut.
20.1 × 18 = 362 pounds, weight of filling in 18 cuts.

Ex. Find weight of filling in 44 yards woven cloth, worsted, 68 inches wide, 48 picks 2/36s worsted. Take-up, 5 per cent.

(68 × 48) ÷ .95 = 3,426 yards of yarn per yard of cloth.
18s worsted = 6.3 runs.
3,436 ÷ 630 = 5.45 ounces per yard.
5.45 × 44 = 240 ounces (15 pounds) filling per cut.

The pounds per cut can also be calculated from the ounces per yard as follows:

1 ounce per yard = 1 pound per 16 yards.
44 yards = 2¾ lengths of 16 yards each.
5.45 × 2¾ = 15 pounds filling per cut.

WEIGHT FROM LENGTH AND FIXED LENGTH COUNT.

When the yarn is numbered by the fixed length count, the weight is found as follows:

Weight = (length ÷ hank) × fixed length count.

The total length divided by the length of a hank gives the number of hanks, which multiplied by the count (weight per hank) gives the total weight.

As the skein used for the dram system is 1,000 yards long, the number of skeins in any given length is readily found by pointing off three decimal places from right to left.

Ex. Find the weight of 15,500 yards of 3.2 dram silk.

15.5 × 3.2 = 48 drams (3 ounces) weight of silk.

Ex. Find the weight of 35,000 yards of 21 denier silk.

21 denier = 1.21 dram.
35 × 1.21 = 42.35 drams (2.64 ounces) weight of silk.

Usually the reduction of the count from deniers to drams can be made more quickly by reference to the comparative yarn table.

Other calculations for the same fabric are facilitated by finding the quantity required for 100 yards:

Ex. Silk fabric. 6,900 ends 1¼ dram organzine; waste, 4 per cent. Find quantity of organzine required for 450 yards warp.

$(6.9 \times 100) \times 1\frac{1}{4} = 862\frac{1}{2}$ drams (3.37 pounds) silk for 100 yards of warp.

Then:

$3.37 \times 4.50 = 15.79$ pounds silk for 450 yards of warp.

The weight can be expressed in pounds, ounces and drams if desired, but the use of decimal fractions of the unit of weight is to be preferred.

Ex. Silk fabric. Filling, 84 picks, 24-26 denier; 22 inches in loom, waste, 6 per cent. Take-up, 5 per cent. Find weight of filling for 420 yards woven cloth.

$(22 \times 84) \div .95 = 1{,}945$ yards filling per yard of cloth.

$1945 \times 100 = 194{,}500$ yards yarn in 100 yards of cloth.

$(194{,}500 \div 1{,}000) \times 1\frac{1}{2} = 292$ drams (1.14 pounds)

$1.14 \div .94 = 1.21$ pounds filling per 100 yards cloth.

$1.14 \times 4.2 = 5.08$ pounds filling in 420 yards cloth.

The practice of indicating the weight of textile materials by decimal parts of a pound is growing, and it is often necessary to convert ounces into corresponding decimal divisions of a pound. The decimal equivalents are as follows:

1 ounce	.0625 lb.	9 ounces	.5625 lb.
2 "	.125 "	10 "	.625 "
3 "	.1875 "	11 "	.6875 "
4 "	.25 "	12 "	.75 "
5 "	.3125 "	13 "	.8125 "
6 "	.375 "	14 "	.875 "
7 "	.4375 "	15 "	.9375 "
8 "	.5 "	16 "	1. "

LENGTH FROM WEIGHT AND COUNT.

This is the reverse of the process for finding the weight from length and count. For the fixed weight count the method is as follows:

Length = weight × count × hank.

Ex. Find length of 6 pounds of No. 40 linen yarn.

$6 \times 40 \times 300 = 72{,}000$ yards.

Ex. Find length of 15 ounces of No. 16 worsted yarn.

$15 \times 16 \times 35 = 8{,}400$ yards.

Ex. Find length of 12 grains of No. 60 cotton yarn.

$12 \times 60 \times .12 = 86\frac{1}{2}$ yards.

When the yarn is numbered by the fixed length count, the formula is as follows:

Length = (weight × hank) ÷ count.

Ex. Find length of 1.08 pounds $1\frac{1}{2}$ dram silk.

$1.08 \times 256{,}000 \div 1.5 = 184{,}320$ yards.

Ex. Find the number of hanks in 6 pounds of No. 40 cotton yarn.

$40 \times 6 = 240$ hanks of 840 yards each.

The length in yards, feet or other units is obtained by reducing the skeins to the unit desired. In the preceding example:

$240 \times 840 = 201{,}600$ yards.

Ex. Find the number of yards in 20 pounds of 4-run woolen yarn.

$4 \times 20 = 80$ runs of 1,600 yards each.

$80 \times 1{,}600 = 128{,}000$ yards.

Ex. Find the number of yards in 32 ounces of No. 30 worsted yarn.

The number 30 expresses here the hanks of 560 yards each per pound, or the lengths of 35 yards each per ounce:

$32 \times 30 = 960$ hanks of 35 yards each.

$960 \times 35 = 33{,}600$ yards.

This problem can also be solved by reducing the ounces to pounds and proceeding as follows:

32 ounces = 2 pounds.

$2 \times 30 = 60$ hanks of 560 yards each.

$60 \times 560 = 33{,}600$ yards.

Ex. Find the number of yards in 15 grains of No. 16 cotton.

$15 \times 16 = 240$ lengths of .12 yard (4.32 inches) each.

$240 \times .12 = 28.8$ yards.

Ex. Find length of yarn in 10 ounces No. 28 worsted.

$28 \times 35 = 980$ yards per ounce.

$980 \times 10 = 9{,}800$ yards in 10 ounces.

Ex. A worsted warp 179 yards long made of 2/60s yarn weighs 32 pounds. Find the number of ends.

$32 \times 30 = 960$ hanks.

$960 \times 560 = 537{,}600$ yards of yarn.

$537{,}600 \div 179 = 3{,}033$ ends in warp.

Ex. A woolen warp made of 1,440 ends of 2-run yarn weighs 120 pounds. Find the length of the warp.

$2 \times 1{,}600 = 3{,}200$ yards per pound.

$120 \times 3{,}200 = 384{,}000$ yards of yarn.

$384{,}000 \div 1{,}440 = 266\ 2/3$ yards, length of warp.

Ex. A worsted warp with 4,000 ends 2/40s yarn weighs 120 pounds. Find the length.

$20 \times 560 = 11{,}200$ yards per pound.

$11{,}200 \times 120 = 1{,}344{,}000$ yards yarn.

$1{,}344{,}000 \div 4{,}000 = 336$ yards, length of warp.

Ex. A beaver is woven $77\frac{1}{2}$ inches wide, filling 2 face $4\frac{1}{4}$ runs, 1 back $1\frac{1}{8}$ runs. Find picks required to make filling weigh 19.95 ounces. Take up, 5 per cent.

Each 3 picks are equal to 1 pick of 3 ply composed of 2 threads 4¼ runs, 1 thread 1⅛ runs, the equivalent count being .735 run.

77.5 ÷ .95 = 81.6 inches of yarn per pick.

19.95 × 73.5 = 1,466 yards of the equivalent 3-ply.

1,466 ÷ 81.6 = 18 picks of the equivalent 3-ply.

18 × 3 = 54 picks required for 19.95 ounces.

Ex. A woolen warp with 1,800 ends of 3-ply yarn weighs 75 pounds. Find the length.

3-run yarn measures 4,800 yards per pound.

75 × 4,800 = 360,000 yards of yarn.

360,000 ÷ 1,800 = 200 yards of warp.

This calculation is frequently used in "running out" lots on the warper.

Ex. At the end of a lot there is 90 pounds of 2/40s worsted yarn to be run into a 4,200 end warp. Find the length of the warp, allow 5 per cent. for waste.

90 × .95 = 85½ pounds (1,368 ozs.).

85½ × 560 × 20 = 957,600 yards of yarn.

957,600 ÷ 4,200 = 228 yards of warp.

The length of cloth that can be made from a given quantity of yarn is readily found by dividing the given weight by the weight per yard. Taking the preceding example as an illustration we have:

2/40s worsted = 7 run.

4,200 ÷ 700 = 6 ounces of warp per yard.

1,368 ÷ 6 = 228 yards warp.

Ex. Find length of cloth that can be woven with 181 pounds (2,896 ounces) of 2-run filling. The cloth is woven 72 inches wide with 32 picks. Take-up, 5 per cent.; waste, 5 per cent.

(72 x 32) ÷ .95 = 2,425 yards filling yarn per yard of cloth.

2,425 ÷ 200 = 12.1 ounces yarn in a yard.

12 ÷ .95 = 12.7 ounces yarn for a yard.

2,896 ÷ 12.7 = 228 yards.

Ex. Find length of cloth that can be woven with 20 pounds (320 ounces) of 40s cotton filling. Cloth is woven 32 inches wide, with 64 picks. Take-up in filling, 5 per cent.

40s cotton = 21 runs.

(32 x 64) ÷ .95 = 2,156 yards filling yarn per yard of cloth.

2,156 ÷ 2,100 = 1.03 ounces filling per yard.

320 ÷ 1.03 = 310 yards of cloth.

The same methods of calculation serve for running out odd lots of colored yarn in fancy goods. In such cases only the length of the yarn in question is taken, instead of the total length of the yarn per yard of warp or cloth.

Ex. A fancy woolen cheviot is woven 2 white, 2 brown; 72 inches loom, 34 picks. There is 120 pounds of white filling on hand and a 400-yard warp to be woven. The take-up is 8 per cent. in warp and 5 per cent. in filling. Allow 10 per cent. for filling waste and variation of size. Find how far short the white filling will come from finishing the warp.

(72 x 34) ÷ .95 = 2,577 filling per yard.

As one-half of the filling is white there is 1,288 yards white filling per woven yard.

120 pounds × .90 = 108 pounds.

108 × 3,200 = 34,560 yards of yarn.

34,560 ÷ 1,288 = 268 yards woven with white filling.

400 × .92 = 368 yards cloth to be woven.

368 — 268 = 100 yards of cloth for which white filling is not on hand.

The question might arise as to how many ends could be placed in a warp that was to be made a given length from a given quantity of yarn. Problems of this nature, however, seldom arise in mill work.

Ex. A warp 35 yards long is to be made from 27 pounds of 1¾ run yarn. Find number of ends in warp.

1¾ run yarn = 2,800 yards per pound.

27 × 2,800 = 75,600 yards yarn.

75,600 ÷ 35 = 2,160 ends in warp.

Ex. A warp 224 yards long is to be made from 85 pounds 2/32s worsted yarn. Find number of ends in warp.

2/32s worsted = 8,960 yards per pound.

85 × 8,960 = 761,600 yards yarn.

761,600 ÷ 224 = 3,400 ends in warp.

Ex. Find picks per inch to be laid in a kersey, 78.2 inches wide in loom, filling yarn 3½ runs, to make the filling weigh 10 ounces per yard. Take-up 5 per cent.

10 ounces 3½-run yarn = 3500 yards.

78.2 ÷ .95 = 82.3 inches of yarn per pick.

3,500 ÷ 82.3 = 42 picks per inch.

Ex. Find picks per inch to be laid in a heavy worsted serge, 68 inches wide in loom, filling yarn 2/36s worsted, to make filling weigh 10.9 ounces. Take-up, 5 per cent.

10.9 ounces 2/36s worsted = 6,867 yards.

68 ÷ .95 = 71.6 inches yarn per pick.

6,867 ÷ 71.6 = 96 picks.

When the filling is composed of two or more different counts the average count is first found and the calculation then made as in the preceding examples:

Ex. A dress goods fabric is woven 60 inches

wide, filling pattern 20 picks 20s cotton, 24 picks 12s cotton. Find picks required to make filling weigh 6.74 ounces per yard. Take-up, 5 per cent.

20 picks 20s and 24 picks 12s = No. 14 2/3, average count.

6.74 ounces of 14 2/3 cotton = 5,190 yards of yarn.

60 ÷ .95 = 63.2 inches of yarn per pick.

5,190 ÷ 63.2 = 82 picks per inch.

Ex. A kersey is woven 78½ inches wide in the loom with 48 picks of 4¼ run filling. The filling take-up is 5 per cent. It is desired to add .55 ounce to the weight per woven yard by increasing the number of picks. Find the number of picks required.

78½ ÷ .95 = 82.6 inches of yarn per pick.

82.6 × 48 = 3,965 yards of filling per yard of lighter cloth.

3,965 yards of 4¼ run yarn = 9.33 ounces of filling in lighter fabric.

9.33 + .55 = 9.88 ounces of filling in heavier fabric.

9.88 ounces 4¼ run = 4,199 yards of yarn.

4,199 ÷ 82.6 = 51 picks required for heavier fabric.

This problem can also be solved in the following way:

.55 ounce 4¼ run filling = 234 yards yarn to be added.

234 ÷ 82.6 = 3 picks.

48 + 3 = 51 picks required for heavier fabric.

Ex. A beaver is woven 83 inches in loom, filling 2 face 7 run, 1 back 1.4 run, 72 picks. Take-up, 5 per cent in filling. Find number of picks required to increase woven weight by 6/10 ounces.

The three picks (2 face 7 run 1 back 1.4 run) are equivalent to a singe 1 run.

.6 ounce 1 run yarn = 60 yards.

83 ÷ .95 = 87.4 inches of yarn per pick.

60 ÷ 87.4 = .68.

.68 × 3 = 2 picks.

72 + 2 = 74 picks required for heavier cloth.

To change the weight of the filling without changing size of yarn or width in reed, the picks must be changed in direct proportion.

The filling in the lighter cloth weighs 20.98 ounces.

20.98 : 21.58 :: 72 : 74.

21.58 × 72 ÷ 20.99 = 74 picks in heavier cloth.

In such cases as this it is customary to calculate the weight by the old set, and by a set that the manufacturer judges will give the desired increase. Practical experience in manufacturing enables one to judge closely the extent of the necessary change. Thus, in the above example, the weight of filling with 72 picks and also with 74 picks would be calculated. If the difference was found to be near the desired amount, the picks would be changed to 74 per inch.

PICKS FROM ENDS, WARP AND FILLING COUNTS AND WEIGHT.

Ex. Find picks required in a cotton cloth measuring 4 yards per pound, with 1728 ends, 36 inches wide, No. 16½ warp and No. 20 filling. Take-up 6 per cent in warp and 5 per cent in filling.

(1,728 × 4) ÷ .94 = 7,353 yards warp in 4 yards of cloth.

7,353 yards No. 16½ yarn = 8.5 ounces warp in 4 yards of cloth.

16 — 8.5 = 7.5 ounces filling in 4 yards of cloth.

7.5 ounces 20s cotton yarn = 7,885 yards filling in 4 yards of cloth.

7,885 ÷ 4 = 1,971 yards filling yarn per yard of cloth.

36 ÷ .95 = 37.9 inches of yarn per pick.

1,971 ÷ 37.9 = 52 picks per inch.

ENDS FROM PICKS, WARP AND FILLING COUNTS AND WEIGHT.

Ex. Find ends required in warp of cotton cloth measuring 4 yards per pound, made with No. 16½ warp, 36 inches wide, 52 picks, No. 20 filling. Take-up, 6 per cent in warp and 5 per cent in filling.

(36 × 52) ÷ .95 = 1,970 yards filling per yard of cloth.

1,970 × 4 = 7,880 yards filling in 4 yards of cloth.

7,880 yards No. 20 filling = 7.5 ounces filling in 4 yards of cloth.

16 ÷ 7.5 = 8.5 ounces warp in 4 yards of cloth.

No. 16½ yarn = 866 yards per ounce.

8.5 × 866 = 7,361 yards warp in 4 yards of cloth.

7,361 ÷ 4 = 1,840 yards warp in 1 yard of cloth.

1 ÷ .94 = 1.06 yards warp per end in each yard of cloth.

1,840 ÷ 1.06 = 1,736 ends required.

LENGTH FROM WEIGHT AND FIXED LENGTH COUNT.

The operation of finding the length from the count and weight is reversed when the yarn is numbered by the fixed length system. The fixed length count represents the weight of a fixed length. The length of a given weight is found by dividing this weight by the weight of the fixed length, the result being the length expressed in hanks on which the system of numbering is based.

Take for example the problem of finding the length of 12 pounds of 4 dram silk. The number

4 expresses the weight in pounds of a length of 256,000 yards; then:

$12 \div 4 = 3$.

$3 \times 256{,}000 = 768{,}000$ yards.

Expressing the weight (12 pounds) in ounces, the problem is to find the length of 192 ounces of 4-dram silk. Then:

$192 \div 4 = 48$.

$48 \times 16{,}000 = 768{,}000$ yards.

Again reducing the weight 12 pounds to drams, the problem is to find the length of 3,072 drams of 4-dram silk:

$3{,}072 \div 4 = 768$.

$768 \times 1{,}000 = 768{,}000$ yards.

Ex. Find the length of 21 grains of 3-dram silk.

$21 \div 3 = 7$ lengths of 36 4/7 yards each.

$36\ 4/7 \times 7 = 256$ yards.

THE EFFECT OF A CHANGE IN LENGTH OR WEIGHT ON THE COUNT.

A change in the length or weight of yarn often occurs in the processes of manufacturing with a resulting change in the count. Following are a few examples of loss or gain in length or weight:

Change of weight:

Scouring yarn. A loss.

Coloring yarn. Usually a loss, sometimes a gain.

Finishing cloths. Usually a loss. A gain in weight sometimes results from weighting.

Change of length:

Doubling and twisting. Usually a loss, sometimes a gain.

Finishing cloth. Usually a loss in woolen and worsted goods, due to the felting of the goods.

Weaving. An apparent change in length takes place due to take-up of warp in weaving and contraction of cloth after weaving. No actual change in length occurs.

Changes in the weight or length of yarn are usually expressed by percentage based on the original length. If, for example, two lengths of 100 yards each of single yarn are required for 90 yards of 2-ply yarn, the take-up or shrinkage in length is 10 yards or 10 per cent of the length before twisting. In like manner if 300 yards of warp is required for 276 yards of cloth from the loom, the take-up or apparent shrinkage in length is 24 yards or 8 per cent of the length before weaving.

The method of calculating the effect of changes in length or weight depends on whether the yarn number is based on a fixed weight or a fixed length.

The same method is used for all fixed weight counts, irrespective of the particular standards used, whether the cotton, worsted, linen or run system. Likewise the same method of calculating the effect of these changes is applicable to all fixed length systems of numbering yarn, such as the denier, dram and various grain systems.

(To be continued)

TREATING BAST FIBERS

A Russian process for which a United States patent has recently been issued, has for its object the treatment of bast fibers obtained from the lime tree and willow, preparing them for manufacture into fabrics. The inventor gives the following description of the process:

The object of this invention is to produce from the bast of the linden or lime tree and the willow, long threads which may be used on a loom in the ordinary way for the manufacture of webs of various kinds. The films of bast or inner bark of the said trees, separated from the outer bark, are boiled in an open or tightly closed vessel with an alkaline liquid to make the same soft and capable of being subdivided in a longitudinal direction. The concentration of the alkaline liquid and the duration of the said boiling process depend upon the origin of the bast. The bast received from an old tree must be boiled a longer time than that from a young tree. If the boiling is effected in an open receptacle the same takes about two hours. The softened bast films are then placed upon a table end-by-end and cemented together, using pasted paper strips or the like, which are stuck to the adjacent ends of the strips on both or only on one side. The long bast-film thus produced is then subdivided, by means of appropriate devices, into long narrow strips or flat threads which are then spooled and finally used on looms in the ordinary way.

The dividing of the bast-films into flat threads may be attained by passing the films

between a flat and a ribbed cylinder or by means of edged rotating discs.

If it is desired to produce from the bast fine webs, the bast-films are submitted, after the first boiling, to a second boiling process of from 15 to 30 minutes within a closed vessel containing a 2 per cent. to 3 per cent. liquid of soluble glass. This fibrous material can be without any difficulties decomposed into primary fibrils and then spun to threads either separately or in combination with fibrils of another origin, as hemp, line, etc. Such fibrils may be also brought into the webs produced from the flat or spun threads of bast by using the threads of bast and the threads from another fibrous material conjointly and alternately in separate shuttles of one and the same loom. In such way webs of various qualities may be manufactured, which webs or textures may be submitted to all the known treatments with a view to change the aspect or color of their surface or to render same waterproof.

COOPERATION BETWEEN WOOLEN MILL OVERSEERS

BY FARLOW

There is often far too much antagonsim among overseers, causing friction where there should be harmony. It pays to secure good honest workers and then put confidence in them, always recognizing a faithful performance of duty. More bad results are caused in woolen mills by overseers who lack up-to-date methods of process. These methods should be printed and posted where all the employes can read them, thus helping each operative to become acquainted with his work from an intelligent standpoint. By proper expenditure of the efforts of an employe his or her value to the company may be determined. There are many overseers who are so secretive in regard to their work that their value is decreased. It has always been my practice to inform the help wherever opportunity affords. I desire them to understand fully the methods used to obtain the best results.

Workers should take an interest in the business and shouid have a personal incentive. Promotion is the reward to hold out to them. Some of the best salesmen we have in this country today began their life work as office boys. It often happens that many important tasks have to be left to men who know nothing at all about them, and blunders are most certain to occur. With some definite program in force, these blunders need not occur. Just as soon as the correct method for a certain task has been worked out it should be adopted and recorded as a standard, such rules to be placed where the operatives can see them at all times, showing in detail the exact way to do the work. Every unnecessary movement wastes the time and energy which properly belongs to the employer. Every overseer knows that breaking in a new man, especially in the better grades of work, is an expensive affair and should be avoided if possible. The plan should be to find the best way to accomplish every task. Study, analysis and experiment in detail are necessary, thus bringing the mill towards economy and efficiency.

To accomplish this result it is a good plan to bring all the overseers together at least once a month, during which time the knotty problems of each department may be discussed. It is too often the case that damage to goods is not noticed until the fabric is finished and ready to ship, when naturally enough, the finisher is asked to account for the defect. The fault often lies in the spinning or twisting of the yarn or in the weaving of the fabric. Over such difficulties as these overseers too often become antagonistic. The reason for bringing the overseers together, is to create harmony and correct mistakes. In all of these deliberations the organization should have the hearty cooperation of the superintendent.

How two Nestorian monks journeyed from China with a quantity of silk-worm eggs concealed in their pilgrim staffs is an oft-told tale. These eggs were delivered to the Emperor Justinian, who for a time monopolized the silk industry of the Occident, but after his death in 565 A. D., the production and manufacture of silk became widely disseminated.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

SPINNING WOOLEN YARN

Editor Textile World Record:

I am spinning 1 1/4 run woolen yarn, hard twisted, on a self-acting mule and am having trouble with the yarn twisting off during the spinning process. It seems that there is at each draw about an inch of yarn on top of the bobbin that gets double twist. How should the quadrant be set for such work and what is the remedy for the difficulty? Spinner (2524).

Not knowing how the mule is acting it is rather difficult to answer this question and tell just what is the cause of the trouble. However, I will offer a few suggestions. Set the quadrant arm so that it is pretty well up when the mule is in at the rolls. Keep the ropes tight so that there will be no lost motion, but not too far up. This will wind the yarn tighter on the bobbin. Do not keep the quadrant chain too tight, as this will cause slack yarn on the bobbin when the mule gears at the rolls, and will pull the yarn from bobbin when the carriage is drawing out, making heavy yarn at the top of the bobbin with a little more twist than elsewhere. The ease-up motion may not be working evenly or it may be too fast or too slow. The stock may not be suited to stand the amount of twist that is being put into the yarn. The roving may be twitty and not take the necessary amount of twist. The spindles may be too low, allowing too much yarn to pull off the bobbins in the process of drawing. For ordinary stock the spindles should be about 1/4 inch above the bottom of the front bed roller and the pitch of spindles should be between 12° and 13°. On some stock the spindles have to be lower with more pitch, but for ordinary work the above set is about right. Woolen Spinner.

* *

Spindle points and too much yarn on top of the bobbins on the outward stretch are usually caused by the mule carriage not traveling fast enough to deliver the yarn from the mule rolls, or the rolls are running too fast for the speed of the carriage. For heavy wool the spindle should be dropped down a little. A little more pitch will often help.

The draft scroll is a very important factor. I have a mule with the latest scroll and several changes of wings for different lengths of draft. The longer the roving draft the larger are the wings used. The trouble "Spinner" complains of is often caused by too light roving from the cards which gives too long a draft on the mule. When the mule is properly adjusted and free from spindle points and the yarn still twists off, then then there must be too much twist in the yarn for the quality of stock used. The easing of the mule carriage while twisting may be too slow for the amount of twist used. For low stock and heavy yarns a slower spindle speed is necessary. The quadrant when properly set for winding one kind of yarn on bobbins is nearly always right for all kinds. If the bobbins are too soft on the nose, the quadrant should be lowered a little when the mule carriage is at the rolls. If too tight on the nose raise the quadrant a little. Heavy work will stand a tighter wind than fine work. Hard twist yarn will stand a tighter wind than soft twist. All kinds of stock or all sizes of yarn will not stand the same amount of twist or the same amount or length of draft. Tusco.

"Spinner" does not state whether the trouble with the slack yarn on top of the bobbins occurs while the mule is drawing out, or when the fallers change on the inward run. Since he asks how the quadrant should be set, I am led to believe that the

trouble starts at the point mentioned last and appears where the bobbins are about two-thirds full. It is my opinion that the trouble is caused by the yarn drawing from the bobbins at the end of the wind as the fallers change at the beam.

It may be that the spindles are too low or pitched over too far. I would suggest that the spindles be set about 1/8 inch on the bottom roll for this class of work. This trouble will also arise if the builder rail is not properly adjusted to keep the length of the chase or wind the same from the bottom to the top of the set. The length of the chase should be 2 to 2 1/2 inches. The length of the chase on the machine in question will probably be found to be about 1/2 inch shorter on top of the set than it is on the bottom or beginning of the set. The yarn that is thrown off having been previously twisted would naturally twist off, as it would be getting double twist. It will also be found on reeling at this point that the yarn will be anywhere from 1/2 to 1 run heavier than it is on the bottom of the bobbins. I would suggest that the builder rail be set on the forward and back shoes so that when the builder is wound up the studs will be close to the top of the machine. Then put a 26-inch level on the inside end of the rail and lower this end of the rail by means of the adjusting screw which is under the rail at this end, until the end of the bubble in the level comes where its center should come. If the chase is too long after this is done, shorten it by burying the adjusting screw further into the rail, or screwing it out if a shorter length is desired. It is sometimes necessary to move the rail further forward toward the inside shoe so that the high part of the rail will be nearer the finish of the wind. The quadrant should be set about 18 inches from the floor to the top of arm. See that the winding faller is not being tripped too quickly. As the mule comes up to the beam there should be from 1/8 to 1/4 inch space between the stud and the faller leg after the fallers have changed. Also see that the rolls that relieve the tension faller are not too high or too far in. These adjustments should overcome the trouble "Spinner" is having. Natrona.

STAINS ON KNIT GOODS

Editor Textile World Record:

We are having considerable trouble with our bleaching. We are using a cylindrical vat lined with lead and the seams are soldered together. The vat is heated by steam which is carried into the bottom by an iron pipe which is below a false bottom. The false bottom is perforated and also lead covered. We boil the goods for about 7 hours and when they come out we notice some slight stains. These stains turn brown as soon as they come in contact with the chloride of lime. We have tried washing the webbing in soap before bleaching with some success, but still the stains do not entirely disappear. They leave a yellow cast which stays on the cloth.

Bleacher (2515).

The stains which appear on the knit goods are what are known as kier stains, no doubt caused by the action of the caustic on the lead lining, or by the goods not being immersed enough in the water during the process of boiling. If due to the latter cause the stains will appear on the top of the kier, but if they are observed all through the kier,

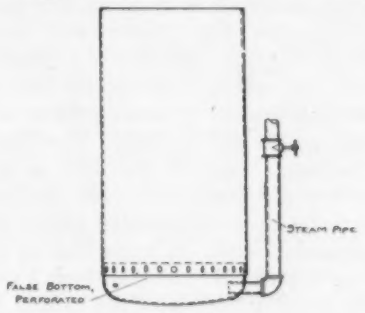


FIG. 1

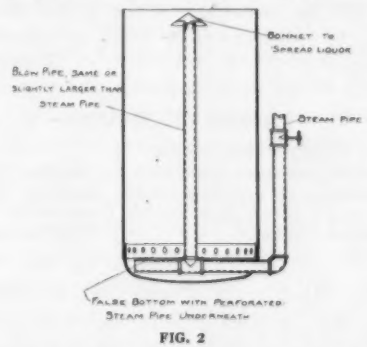

BONNET TO SPREAD LIQUOR
BLOW PIPE, SAME OR SLIGHTLY LARGER THAN STEAM PIPE
STEAM PIPE
FALSE BOTTOM WITH PERFORATED STEAM PIPE UNDERNEATH

FIG. 2

then the trouble must be due to the action of the caustic on the lead lining. Another cause that comes to mind is that the liquor may not be circulated through the cloth as it lies in the kier when being boiled. I would

suggest giving the kier a thorough cleansing, taking up the false bottom and cleaning underneath. After it is cleaned give the whole kier a good white washing with a lime wash. Mix about 6 to 8 pounds of lime in 3 gallons of water and apply with an ordinary white wash brush. If necessary give two coats of the lime wash to ensure a good coating on the inside of the kier.

"Bleacher" does not state the size of his kiers, but from the length of time the goods are boiled I presume there is a considerable amount of goods in the kier. I am presuming that the kier has a perforated bottom which is not generally used in boiling out cotton goods. I have an idea that "Bleacher's" kier is like that illustrated at Fig. 1, and if such is the case I would suggest having a kier constructed like that shown at Fig. 2. This will not entail much expense and will be sure to give more satisfaction and instead of boiling from the bottom the goods will be boiled from both top and bottom. Whether this kier is adopted or not I would first white wash the kier and cover the bottom with burlap before putting in the goods. Then try out a kier or two before making the alterations which I suggest. If soap is being used with the caustic I have often known of this causing stains, but if using only the caustic, try washing out the kiers. If the caustic leaves the goods too harsh give them a soap bath after the bleaching process and in this way a much softer feel will be imparted to the goods than if a soap or softener was used in the boiling process. Dulcimer.

SPEED OF BOBBINS

Editor Textile World Record:

Please give me a good rule for finding the speed of bobbins on a Woonsocket Machine & Press Company's seven inch roving frame with Daley's differential motion. Clayton (2488).

We referred this injuiry to the Woonsocket Machine & Press Co., Woonsocket, R. I., who replies as follows:

The ratio of the spindle to one revolution of the driving pulley on a 7 by 3 1/2 inch roving frame is 3.073, that is, one revolution of the driving pulley will turn the spindle 3.073 revolutions. The speed of the bobbin, as indicated in the question asked by "Clayton" is variable; that is, each change of the cone belt changes the speed of the bobbin and would have to be figured separately for every different position of the cone belt.

DYEING HOSIERY

Editor Textile World Record:

I have been thinking of starting in the hosiery business in a small way and could not, of course, afford a dyer. I have had some little experience in dyeing and thought probably with the proper formula I might be able to get away with it, or do you think it would be better to have them dyed outside? I would want to work probably from 30 to 50 pounds at once in black, blue, tan and gray. Saran (2493).

The dyeing of small lots of hosiery such as offers relatively more difficulties than large lots. For small batches as large as 50 pounds each for a single shade, the best possible contrivance to use is a rotary dyeing machine of the laundry washer type, to contain 150 gallons of water, thus allowing 3 gallons of water for each pound of goods to be dyed.

A good dyeing requires that the hosiery must be dyed at the boil, and a steam coil is necessary, the steam being obtained from a special boiler, or the supply arranged for from a nearby steam using establishment.

Hosiery dyeing is not a matter of formula alone, but a combination of conditions, the most important being experience along this line of work, for it is a very easy matter for a novice in dyeing to spoil a batch of stockings so that the most skillful dyer would be unable to rectify it. This is especially true of tans and grays.

For ordinary grades of cotton stockings, the most common colors for tans and grays are selected from the group of "fast direct" dyes, which may be obtained in a wide variety of shades. Standards may be selected from the shade cards of the various dyestuff sellers. These dyes, however, are not the fastest that are possible to obtain. Those possessing greater durability are selected from the group of "diazotizable and developing" colors, which require for their proper appplication the so-called "3-bath" process. Blue and black would be dyed by this process.

The hosiery should be well boiled out in water and a little soda ash for an hour be-

fore dyeing, so as to ensure the removal of oil and other impurities. Then wash thoroughly in clean water, and finally dye as follows:

For Black on Fifty Pounds of Stockings

First bath.

3 lbs Diazotizable black (Blacks of this kind are very scarce in the market at the present time on account of the war, but are handled by every dyestuff dealer).

10 to 12 lbs. Common Salt.

Boil 1 hour, run off, and rinse.

Second bath (cold).

1 lb. Nitrite of Soda.

1 qt. Muriatic Acid.

Work the stockings for 20 minutes, run off and rinse well.

Third bath.

½ lb. Phenylene Diamine Powder (This is the "Black Developer").

¼ lb. Soda Ash.

The stockings are worked in this bath at a temperature of 160° F. to 180° F. for 3/4 hour, then wash well.

These several solutions are made up separately, and poured into the rotary dyeing machine without removing the stockings until the entire job is finished.

Often in the final wash a light soap liquor is run in and the stockings whizzed and then dried on the boards.

When dyeing with the "fast direct" colors, the proper amount of dyestuff, ranging from 3/4 to 1 1/2 pounds for 50 pounds of cotton stockings is dissolved in hot water and 10 pounds common salt. The stockings are dyed boiling for 1 hour, followed by a rinse and a light soaping. Some of the tans and browns are made particularly fast to washing by aftertreating with a very weak solution of bluestone at the boil.

For dyeing grays, from 1 to 3 ounces of direct dye to each 50 pounds of hosiery and 5 pounds of salt. Dye at a boil.

The sulphur colors are also to be recommended for stockings, and all shades are to be obtained by their use, but directions for their employment are best obtained from the makers.

When only one batch a day is to be turned out, it is doubtful if the output will warrant engaging a dyer, but if it can be arranged to have the work done in a job dyehouse where uniform results can be assured, this step is to be seriously considered. Berwick.

STICKY WARPS

Editor Textile World Record:

We are having trouble with sticky warps. They are made of 2/20s and 2/26s cotton with different numbers of ends. The 2/20s from 120 to 270 ends. Four of the 120 ends are put together and a binder tied around them about every 10 inches, making 480 ends. We put 8 together with a binder around four and then a binder around the 8. They feel wiry and stick worse than the 4 do. Two of the 270 ends are put together with a binder around them and they feel wiry and sticky.

The 2/26s have 240 ends, 3 being put together with a binder. We tried putting 4 together, but they stick. It seems that the more ends we have the more sticky they are, while the less number of ends that are tied together are quite soft. Would the grade of cotton or yarn have anything to do with this?

Our process is as follows:

They are first run off from the roll wet into kier and boiled in a liquor made of 2 per cent. caustic soda and enough water to cover the goods. They are boiled 7 hours at a 15 to 20 pound pressure. They are then washed out of the kier through a washing machine and soured with sulphuric acid at 1° Tw. and washed well into a second boil. They are again boiled for 7 hours at 15 to 20 pound pressure with a liquor made of 1 per cent. Danker & Marston Bleaching Assistant and 3 per cent. soda ash. They are again washed through the washing machine into a bleach and bleached 6 hours with a solution made up of chloride of lime at 1 1/2° Tw. They are then washed in the washing machine with water heated at 110° containing soap and bluing. We use Ivory soap and put in enough to make a good suds. They are then extracted until all the water is out and hung up to dry. Can the goods be wrung out instead of extracting, and if so what kind of a wringer is used? We tried wringing them, but the warps were very sticky and wiry.

Dexter (2512).

The goods should never be wrung out by a wringer or even by hand, as this causes the warps to be twisted and ravelled up during the process. Extracting is the usual method adopted and this always gives entire satisfaction. As soon as the goods are extracted they should be put into a steam heated place and dried out at once and not allowed to lie about for any length of time. If there is any caustic soda left in the goods after they have been boiled out in the sulphuric acid bath, the drying process should do this. If the warps are not dried at once the caustic soda and other ingredients get dried inside the warps and consequently they feel sticky. Another cause of the stickiness is probably due to the binders being too tight and the heat not properly penetrating when the

warps are drying. Cotton of 2/20s and 2/26s are rather fine counts and the number of ends used are above the average. Try fewer ends and the binders slacker. The production will, of course, be less but the results will be more satisfactory. The formula used by "Dexter" seems to be all right.

Osceola.

REMOVING ODORS FROM WOOL

Editor Textile World Record:

We are knitting fine worsted yarns spun on the French system. The cloth goes through a scouring process and then a peroxide bleach. After coming out of the last rinse we do not smell any oil or natural wool odors, but after the cloth has stood for 48 hours we can smell this odor. Could you advise us how to get rid of it?

The water here is very hard, although we soften it to a certain extent. The yarn goes through the following process: In a solution of 5 pounds of soap to 100 pounds of cloth we run the cloth one hour at 130° F., then through four rinses of ten minutes each, and another ten minutes with ammonia in the water and after that another rinse. The cloth is then put through the extractor, after which it goes through the peroxide bleaching process. Then we rinse twice, ten minutes each in warm water and in each of the rinsings the cloth goes through squeeze rollers on the machine. We use the best olive oil soap. From the above process we think that all the grease and wool smell would be removed. Laurel (2517).

To remove an odor from textiles is more difficult than to prevent it. In the present case, the trouble is probably due to the formation of an insoluble soap on the fibers consisting of some of the fats or oils of the soap, in combination with the lime or magnesia of the hard water. These so-called "lime soaps" attach themselves very easily to wool fibers and hold on tenaciously. They possess the property of resisting all means for their removal.

It seems surprising that with the care used in treating these goods, that the odor should persist even after the peroxide bleach. This persistent odor may point to the fact that the soap used in scouring may contain either rosin or tallow, either of which, but particularly the latter, leaves an odor that is not easily washed out of the wool. Even when no soapy feel remains, a peculiar "wooly" odor often remains.

By using in the scour bath a little ammonia, say 1 per cent. of the weight of the goods, and cutting down the soap in the same proportion, there is a possibility that the remaining traces of soap will scour out more completely. It may be of interest to use this amount of ammonia in the first wash water after scouring. This has been frequently tried and found successful in similar cases to this one, and is worth trying.

Berwick.

I will give a few formulas that have never failed me in removing the oily odors from wool and woolen goods.

For 100 pounds of goods.
8 lbs. palm oil soap
5 lbs. soda ash
3 lbs. potash
50 gals. water.

Boil until the solution is dissolved. Take four pails of this solution and wash goods for ten minutes at a temperature of 110° F. Rinse ten minutes at the same temperature and then add 2 pailfuls of the solution. Wash ten minutes at the same temperature as before, adding one pint of ammonia to the last rinse. For washing worsted goods I seldom use soap. I make an alkali solution of

50 gals. water
5 lbs. carbonate of potash
1 qt. ammonia.

Boil for a few minutes. For 100 pounds of goods use three pailfuls for the first wash of ten minutes. Rinse good and wash ten minutes. I never have the temperature over 110° F. in washing or rinsing. When the goods were very oily I have used two different soaps, a palm oil and an olive oil. I have two 50-gallon tanks; one for palm oil and one olive oil. Be sure and use a good soap, the best is none too good. Use 10 pounds palm soap, 7 pounds soda ash, 3 pounds ammoniated potash, 50 gallons water and boil until dissolved, after which use:

10 lbs. olive oil soap
10 lbs. ammoniated potash
50 gals. water.

Boil until dissolved. I use 4 pails of the palm oil soap for the first wash. Rinse well and use 2 pailfuls of the olive oil soap for the second wash. Never have the temperature over 110° F. All of the above are good solutions and will give excellent results.

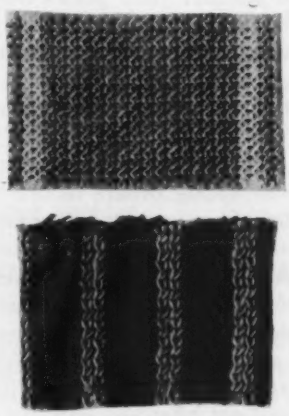
Gerona.

WARP KNITTING

Editor Textile World Record:

Is the enclosed sample, which is 27 inches per yard wide when shrunk, made on a flat or circular machine, and what gauge machine has been used? The weight is about 12 ounces per yard. If made on a circular machine, how many yards per day can we get out of one machine, 27 inches wide? Also what kind of a brush machine will we require for this cloth. Knitter (2499).

I believe this cloth was made on a circular machine, using either a 14- or 16-gauge needle. As it is two-thread work I think by using yarn weighing 48 or 52 grains to 50 yards, running about 23 needles to 6 inches of yarn on a 14-gauge that the goods



SAMPLE OF WARP KNIT GOODS

would come very near what was wanted. Of course the yarn or number of stripes might have to be varied. In using a circular machine one would naturally have a cylinder head large enough to make two widths by cutting the edges of the rolls after knitting. A machine of this size ought to turn about 40 revolutions a minute and on good stock might run faster with perfect safety. Counting 40 turns and allowing four feeds on a machine, each machine could easily average from 140 to 160 yards in a day of ten hours.

Salonay.

The sample enclosed was made on a circular machine, 16 inches in diameter. It is impossible to determine the gauge of the machine from a sample of the goods after it has shrunk. I should judge, however, that the fabric was made on an 8 gauge machine, that is, 8 needles to the inch with three feeds. The number of the yarn depends on the weight of the cloth. A Tompkins machine can be run about 50 revolutions per minute. The cloth can be made to better advantage at a slow speed. The goods are napped on a wire napper after leaving the knitting machine and are then sent to the dye house. The cloth looks much better when napped before dyeing, as it felts to better advantage during the dyeing process. Enclosed are some samples of similar goods made on a warp knitting machine. A better fabric can be made on a warp machine than on a circular knitting frame, as it is possible to introduce stripes. The warp knitting machine will produce about 50 yards of cloth per day. This class of goods is dried on a flat tentering machine which stretches the cloth to the desired width. Gama.

CARDING SHORT WOOL

Editor Textile World Record:

I am enclosing two samples of stock from which we make 20 cut yarn. Please examine the fibers carefully and advise me if they will blend well and of are of the proper length. Will the stock spin good yarn without twits? Carder (2522).

I am of the opinion that the sample of white stock will cause some trouble because the fibers are longer than those of the red stock. There are some small nibs in the colored stock which might not open, but this will not cause very much trouble as there are so few of them.

To card mixtures it is necessary to have the stock uniform in length and free from nibs. There is an old saying, "What I cannot open between my four fingers, I certainly cannot open in the card."

Wheaton.

The inquiry does not state what size yarn is to be spun from the sample of wool stock enclosed. I have no doubt but that the sample will blend well and make a good strong yarn if the stock is carded out well and the yarn is not spun too fine. I would suggest that a sample of 50 pounds be made up and tried out first. It depends a great deal on the treatment the stock received in the carding and spinning departments, whether the yarn will prove satisfactory.

Woolen Spinner.

Knitting Department

THE KNIT GOODS SITUATION

The present condition of the market indicates the return of good times and a profitable fall season for both the manufacturer and jobber of knit goods. There is no reason why these improved conditions should not last for some time to come.

Orders are coming in from all over the country faster than the manufacturers can handle them. In contrast with the small volume of buying after the war began, the South is a very active buyer today and like all other sections wants immediate action.

Their orders say "ship at once or we will have to buy elsewhere." So when the manufacturers' acknowledgment is received with the best delivery they can make, they are told to cancel the order, "We will look elsewhere." When they find all the good manufacturers are in the same condition, they reinstate their order with the first manufacturer, consequently losing several days in their delivery.

There have been advanced prices made on the general lines of underwear for both winter and summer weights and there is room for further advances on a number of lines without putting them outside of the popular selling prices for the jobber and retailer. These advances will take place if the raw material keeps advancing, and if business keeps on improving, as it is more than likely to do. Prices on the finished articles will gradually rise regardless of the raw materials.

Men's eleven pound cotton ribs seem to be the one exception in the underwear line today and some of these have been reduced twelve and one-half cents a dozen.

The 25 cent balbriggan manufacturers are holding firm to the small advance they made last month and are insisting on assortments being given promptly.

The return of foreign buying of winter underwear has lent a helping hand to return of good times to the manufacturer.

Several of the manufacturers of eleven-pound rib underwear have advanced their price 12 1/2 cents per dozen in the last day or two, and the manufacturers of cheap balbriggans have just put on an advance of from 10 to 15 cents per dozen.

HOSIERY

The wool hosiery has also felt the return of good times and manufacturers have been obliged to advance their prices not only on account of the demand being beyond the supply, but on account of the advances they are paying on the raw stock.

Both the manufacturer and jobber are now worrying about their fiber orders for next spring. A good many manufacturers booked their spring orders before they covered on their fiber yarn and they now realize their mistake. The foreign manufacturers of fiber yarn are disappointing their American customers in delivery and this adds to the troubles the hosiery people are having. Virtually all of the fiber hosiery manufacturers have withdrawn their lines from sale and they will not offer any until the situation materially changes.

Mercerized hosiery will no doubt benefit from conditions above mentioned and the better numbers will soon be ready sellers in both women's and men's. At the present rate it is only a question of time when a good quality of fiber ladies' hose will be out of the market as a twenty-five retailer.

There is something else that buyers have overlooked, and that is the proposition of getting seconds. Ordinarily these are very plentiful, but at present the manufacturers are not using up their dyestuffs except in firsts and then in such qualities as show the better profits. The market is now getting very bare on all grades of seconds, especially in blacks, navys and other dark colors.

SWEATERS

The jobbers are now taking hold in a material way on the ladies' fiber coats in vari-

ous grades. A short time ago they bought a few coats at a time and then wondered if they would be able to sell them. Now they are buying them in very fair sized quantities with a rush on every order. The best selling colors are old rose, orange or gold, heliotrope and green.

The men's cotton coats are a trifle cheaper than they were and can be bought with a rough neck and pocket at a price that will enable the jobber to sell at $4.50 with a profit.

The wool and worsted coats still continue to advance, but this does not seem to hold the buying back, as the jobbers realize that they must have some stock on hand, as their customers will not wait at this time of the year.

The two weeks of extremely hot weather in September was a help to both jobber and retailer, as it gave them time to turn around and catch up on some of their back orders that were long overdue.

FINISHING KNIT UNDERWEAR

BY TRENTON

The fabric leaves the knitting room generally in rolls, but sometimes in skeins, and the goods are then turned on a machine before going to the dye house or wash room. Bleached light weight goods are not always turned, but are boiled and put through a lime bleach just as they come from the knitting frames. Leaving the wash room, the goods are hung up to dry, are rolled and then are ready for the cutter. The cutter picks out the necessary sizes for the order and takes them to the cutting table. He pushes a wooden roller through the center of the roll of goods, places the roller upright so that the fabric will run free and lays out the necessary length or lengths, according to the style wanted. On shaped goods, each length is cut with shears. By shaped goods is meant those goods that are shaped on the knitting machine, or straight goods shaped by cutting. Tuck stitch shaped goods cannot be cut by machine because they will not lie out even. Straight goods must be shaped single for the same reason. In layers of a dozen one or more lengths may be wide or narrow. Full length, shaped union suits are cut single on account of certain styles, flaps or some patented styles that need shaping.

Garments that are knit shaped have a mark to cut by. A ladies' vest has a plain stitch half an inch wide between the neck of one garment and the tail of the next. This plain stitch is cut away from the tail, leaving the plain stitch for the seamers to seam off, as it is only half the thickness of the tuck stitch. The above also applies to shaped union suits. Men's goods are, as a rule, laid out in layers or about three dozen lengths, and a machine is used to cut through them. This cutting machine has a knife about a foot long attached to a small electric motor. A crank moves the knife up and down through the goods at high speed. The arm-holes were formerly cut separate, but time is saved by using a machine.

Ladies' straight goods are laid out the same as the men's, but more attenion is paid to them on account of the many styles prevailing. Many concerns cut only lengths at the cutting table, these lengths are then laid out in say three dozen layers and three lengths long. The cutters will make two straight cuts, leaving three lengths of three dozen each, or nine dozen. The seamers will then seam across the shoulders and other operations of finishing before the neck cutters finish the cutting.

I know of one concern that makes a light weight ribbed vest with a very simple finish. The cutting is all done at the cutting table, even the armholes and neck. They have made this garment for years and it seems very popular. As an example of quick cutting the following will be of interest. A mill having eleven large balmoral machines, 16 to 24 inches in size, runs the frames day and night, producing about 125 dozen garments a day of 24 hours. This work was formerly done by two cutters with a girl helper, cutting one dozen at a time with a knife. One man with an electric cutter now does the work alone. This may seem easy to a cutter of regular ribbed goods, but when all things are taken into consideration, he will change his mind. A balmoral frame makes flat

work and has but a single set of needles. As a result the cut edges curl up. The fancy stripes must be straight. As the goods are cut direct from the roll as it comes from the knitters, this difficulty does not often occur. Then again, the yarn used is a hard twist lisle that wrinkles and curls very easily.

This cutter has a steam jet of live steam that saturates the fabric as it comes from the roll. The goods are laid out five or six lengths long, the first length only being cut with shears. In this way only one of the six lengths is left to curl and an iron weight holds this down. The electric cutter glides through the other lengths, saving the time of handling shears or smoothing out curls on every length. Nearly all union suits require more or less hand work at the cutting table. A man's union suit that has proved quite popular necessitates seven separate operations before being tied up. The cutter is so quick in all his movements that the eye can hardly follow the operation. Sleeves are cut from patterns for this garment. Ribbed cuffs are sewed on the sleeves, flaps are cut from a pattern, generally from waste pieces, as are gussets for ladies' sleeves. Each size has a pattern, excepting shaped goods. Shaped sleeves are used on all ribbed underwear.

Each year brings out new attachments for the cutter, such as the folder for laying out the goods and pressing in a steam bath the goods that formerly was rolled up. This folder has many things in its favor. The layers will place the goods more evenly and after napping the goods will seldom wrinkle. When turning a layer to cut out a defect, smooth layers will facilitate the work. There has been some talk lately of a machine to cut and seam union suits in one operation. This will indeed be a wonderful achievement if it can do the cutter's work, cut out bad spots, lay the goods straight, figure on the end of a roll and save enough between defects to cut into flaps or gussets. This makes one think of the man in Brooklyn who had dies and a chopping block to cut sleeves, or the man who intended to make a complete union suit on a knitting machine, all excepting sewing on the buttons. The electric cutter has improved the cutting methods in more ways than one, as both quality and quantity is improved at a lower cost.

REMOVING STOCKINGS FROM BOARDS

The illustrations show a device recently patented in this country, for removing stockings from stocking boards. The inventor describes it as follows: The object is to remove the stocking from the

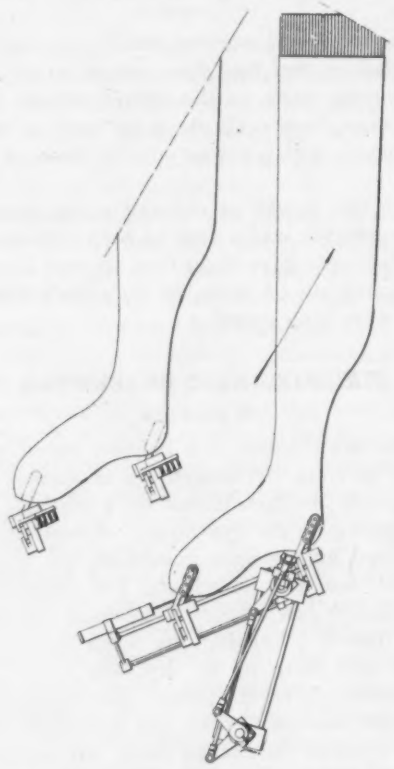


FIG. 1 FIG. 2

board in such a manner that it will not be torn or unduly stretched and will be properly pressed, so that one stocking after another be laid on a pile with the foot in proper relation to the leg. The board can either be removed from the stocking while the stocking is being held, or the stocking can be removed from the board while it is being held, or both can be moved in unison in opposite directions if desired.

Fig. 1 shows a stocking mounted on the board in such position that it can be grasped at the toe and heel; Fig. 2 shows the mechanism grasping a stocking at the toe and heel, with the board in place prior to being removed; Fig. 3 illustrates the first step in removing a stocking from a board; Fig. 4 shows the board removed from the foot portion and passing through the angle portion; Fig. 5 shows the stocking board coming from the leg portion of the stocking.

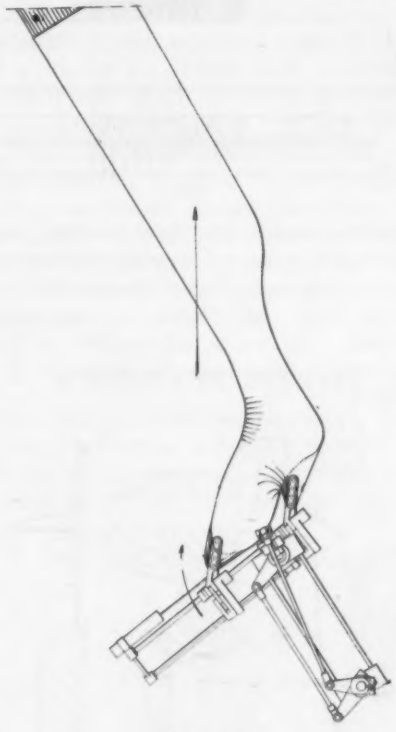


FIG. 3

No special mechanism has been used for removing stockings from the boards. The removal was accomplished by an operator merely grasping the heel and jerking the board out of the stocking. Better results are obtained by a careful removal of a stocking from the board.

The stockings are dampened and then dried. The usual practice is to place the boarded stockings in a chamber through which hot air circulates. Machines are also used for feeding the boards with stockings through drying chambers. As a stocking comes from the drying chamber it is removed from the board. Stockings may also be dried by being placed on hollow forms in which air or steam is allowed to circulate, or they may be dried by means of an electric current from a heater surrounding the stocking ,or from the coils in the board or form.

The gripping jaws form part of a mechanism shown at Fig. 2. Each jaw has a bottom plate and a clamp. The jaws are mounted on arms and one jaw is located on a carrier to which a counter balance is attached by a cord.

FIG. 4 FIG. 5

In Fig. 1, the clamps are moved out of the path so as to allow a stocking board, with the stocking thereon, to come directly over the bottom plates of the gripping jaws. After a stocking board is in position the clamps are moved over the top of the stocking, which is clamped to the bottom plates. One gripping jaw grasps the heel of the stocking and the other grips the toe, as shown at Fig. 2. Longitudinal movement in the line of the arrow, Fig. 2, ,is imparted to the board and the removal of the board from the foot of the stocking causes one gripping

jaw to move toward the other, overcoming the counterweight, as shown in Fig. 3. This brings the toe and heel portions nearer together than in Fig. 3, and allows the heel portion of the stocking to be withdrawn farther from the board than the toe portion. This releases the heel of the board so that, as the movement of the board is continued, the foot of the board will pass through the angle portion of the stocking at such an angle as to give the ankle the least amount of stretch possible.

STRIPES IN KNIT GOODS

A method of knitting single needle stripes in full fashioned goods, recently patented in this country, is described by the inventor as follows: The method consists in leaving slack the loop in the threads at the place where a stripe is to appear in the goods, in rolling the threads in this slack loop, one over the other, to reverse their relative positions, and in completing the stitch; and the new means resides in a divider having a deepened throat to receive the stripe-forming portions of the threads, and provided with a part to assist in turning the threads. The object of the new construction is to produce single-needle, vertical stripes in the body of knit goods, by throwing the back threads to the front and the front threads to the back, and provide a flat, full-fashion machine with practicable and efficient means for doing such work, no additional carriers being required, there being no extra winding or extra ends or threads.

Stripes have usually been superinposed on goods made on the flat, full-fashion machine, so that the goods were thicker in the striped portions. In order to produce such stripes extra carriers had to be used, extra winding had to be done and extra ends or threads were involved. The new method enables flat striped goods to be made without the aid of any extra parts except the special dividers, which take the places of the ordinary dividers. An unlimited number of designs and combinations can be produced by this method.

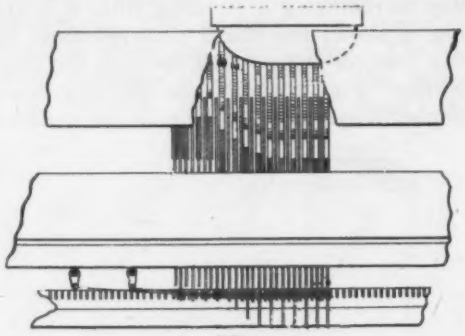


FIG. 1

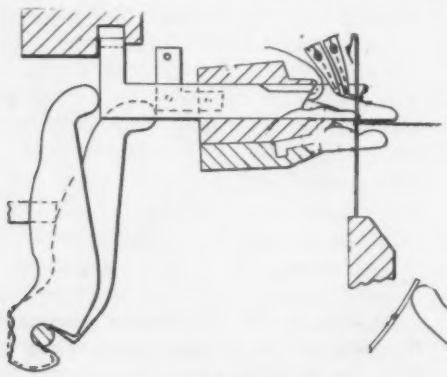


FIG. 2

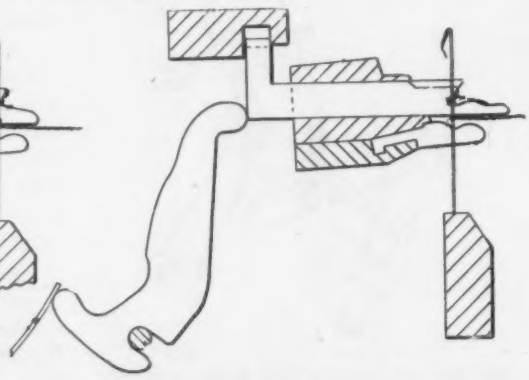


FIG. 3

Fig. 1 is a top plan of a portion of a flat, full-fashion knitting-machine, with which a number of the thread-reversing dividers is incorporated; Fig. 2, a sectional elevation of parts of the machine, shows a side elevation of one of the dividers; Fig. 3, a view generally similar to Fig. 2, but without some of the parts shown in the preceding view, and showing the thread-reversing divider in its most advanced position.

The stripe stitches are made in the same way as are the other stitches, with this important distinction; Prior to the completing of the loop stitch for the stripe, that is, before any last loop formed by a pair of sinkers and a divider 20 is released by the sinkers and divider, when the same are drawn from beneath the last loop, and the latter is drawn through the preceding loop on the needles, the threads in the last loop are reversed, being reversed by the action of the divider and because the threads are left loose or slack. In the case of any stitch in the unstriped portion of the fabric, although a pair of sinkers and a divider are drawn from beneath the last-mentioned stitch, it is not reversed and can not be reversed, since it is held taut by the last-mentioned sinkers and divider, and the back thread, which at the start is on top of the front thread, remains in that position continually. It follows, therefore, that the principle of the device consists in leaving slack and rolling, turning, or reversing the stripe-forming loop threads.

A NOVEL KNIT GARMENT

The knit garment shown in the accompanying illustration, which has recently been patented in this country, is described by the inventor as follows: The principal object of the present invention is to provide an article of apparel which by reason of its shape, structure and fittings can be used as a muffler, sleeping cap, body belt, waistcoat, foot muff, sling and the like, and is therefore especially well adapted for use by soldiers engaged in campaigning and similar pursuits.

Fig. 1 shows an article of apparel embodying novel features. Figs. 2 and 3 are similar views illustrating some of the ways in which the article may be used, and Figs. 4 to 7 are views illustrating several uses of the article illustrated in Fig. 1.

In the illustrations, 1, is a body portion of

FIG. 1

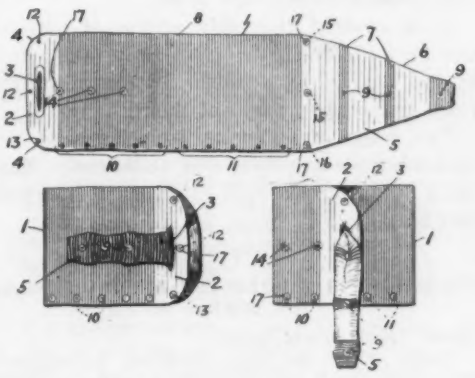


FIG. 2

FIG. 3

uniform width and of the fabric ribbed on each side. 2 is an end portion knitted continuously with the body portion, 1, and consisting of a plain fabric. The end, 2, is provided with a crosswise slit, 3, and is narrowed as at 4. The edge of the slit may be bound and then button-holed. 5 is an end portion knitted continuously with the rest of the article. It consists of a fabric plain on one side and ribbed on the other, narrowed as at 6 and having cross-bars of plain knitting.

There is a row of press-button elements along one edge of the body. The bottom

FIG. 4

FIG. 5

FIG. 6

FIG. 7

edge of Fig. 1, those marked 10, are socket elements and those marked 11 are stud elements. The press-button elements are all upon one face of the fabric. The various elements of the press-buttons are sewed to the knitted fabric on the face where they appear and back of them on the other face of the fabric there is a reinforcement, 17, to which the elements are sewed.

It is evident that this article of apparel can be folded in a variety of ways and when folded secured in position by the described press-buttons or some of them.

The other illustrations, together with the foregoing description, will sufficiently illustrate some of the uses to which this article can be put.

MACHINERY REQUIRED FOR AN UNDERWEAR MILL

Editor Textile World Record:

Please inform me what machinery is necessary in an underwear mill to produce 40 to 50 dozen per day of ten hours, stating cost of machinery and floor space required. Knitter (2519).

This is a difficult question to answer as "Knitter" fails to state what kind of goods he intends to make, whether two piece suits or unions. It would make a great difference in the machinery required whether flat or ribbed goods were to be made, whether winter or summer weight and whether men's, women's or children's sizes are to be made. Many of the mills just starting are making ribbed goods so we will presume these are the goods to be made. We will also assume that men's union suits are to be made weighing 16 pounds per dozen. As to the cost of machinery, this would vary a great deal according to the make of machines used and the style of finish produced, but for a medium quality garment with finish according to quality, the machinery necessary to produce 50 dozen per day, if bought new, would cost in the neighborhood of $7000. This figure is for machinery which costs more than some other kinds, but which, from my experience, I think would be the cheapest in the end.

The floor space required for this production, for manufacturing purposes, outside of storage, would be about 800 to 900 square feet. This figure could be cut in half both for the cost and floor space required if the production was 40 to 50 dozen per day of two piece goods. If "Knitter" will give more definite information as to what kind of material is to be manufactured, I will give him the number of machines that will be required. Sonoma.

DEFECTS IN SILK HOSIERY

Editor Textile World Record:

Under another cover we are sending you samples of hose manufactured by us. We wish you would look these goods over and give us your opinion of the cause of our trouble. You will notice that with the pure silk that there are numerous bad places which do not seem right to us. We are using a good grade of silk, in fact it is bought as the best; it is a No. 10, 13-15 denier with 2 twists to the inch. With the artificial silk there seems to be an unevenness in tension. We are plating a 150 denier Belgian AA. over a 2 Japan 13-15 denier, boiled off. These goods are made on a Banner machine, 3 1/2 inches, 260 needles.

It seems to us that the pure silk does not contain twist enough. The dyer claims that he uses a smooth kettle and that the trouble is not his fault. The silk people claim that perhaps the knitting machine is at fault, which we hardly believe, as we have looked it over very carefully. We are of the opinion that the twist in the silk yarn is not hard enough and allows the fibers to become separated while entering the needles, the needles passing through the separated fibers of silk. We find that by running a pin over the surface of the finished hose we can pick up loose fibers and when pulled they give the same effect that you see in the sample. This would indicate to us that the silk has not the necessary twist and that while in the process of dyeing the loose fibers have been caught with the result shown in the hose. As to the artificial silk we do not know what to say, except that perhaps the twists are far different from each other and that they take the dye different. All yarns are run from cones. The artificial silk is run from a Universal viscose cone 3 inches in diameter. We have tried to explain as fully as possible our opinion of this matter so that you will see that we are not sending you these goods without first trying to find the trouble ourselves. Would not a 5 twist per inch be better for knitting this hose? Brusa (2523).

In looking over the samples I find, as "Brusa" says, they are not satisfactory. In the first place there are a number of bunches of fiber on the silk yarn in the gum which would not knit in smooth. I believe a yarn with more twist would be more satisfactory, as the ends would be firmer. More nap will always be found on a fabric after dyeing. I would suggest that "Brusa" run the hose

through a lisling or singeing machine to remove the nap and make a smooth face. I infer that the sample of boiled off yarn is the same quality as sample in the gum. If so, the dyed hose does not show the luster it should have. This leads me to conclude that the luster has been lost in dyeing, which would indicate the use of too much acid in the process. Moreover there is no scroop to the dyed hose.

In reference to the fiber silk plated hose, the fabric indicates that the yarn holds tighter on the cone at some places than at others, causing more tension and a tighter fabric. I would suggest the winding of the yarns on small bobbins. This will give a regular tension at all times from a full to nearly empty bobbin. I do not advocate the use of any method of winding which does not give considerable taper on the cone. If the cone does not taper enough the yarn in each layer will lie too close and cause too much tension by hugging the top of the cone. Knobs will catch the yarn and if no stop motion is used will break the end and cause bad work or a press-off where single yarn is used.

Even with the uneven tension, the fabric can be improved somewhat by the adjustment of the stitch cams on the knitter, so as not to have any play at the bottom of the cam. Where there is any space at the bottom of the cam, the momentum of the needle going down will naturally throw the needle to the bottom of the space, especially in the loose portion of the hose. In the sample enclosed the unevenness is more prominent in the loose knit portion.

I would suggest that "Brusa" go over the machines and adjust them as shown on Fig. 1 and Fig. 2, with only room enough for the needles to pass through at the bottom of the stitch cam from points, a and b or c and d, according to the style of cams in the machines. If winding the yarn on bobbins and adjusting the cams do not give the desired results, "Brusa" might try a slower speed. There are too many manufacturers today sacrificing quality for quantity by running machines at an excessively high speed.

Cipango.

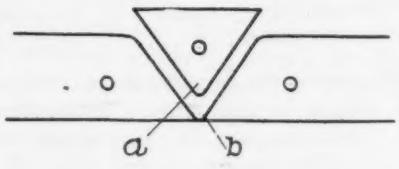


FIG. 1

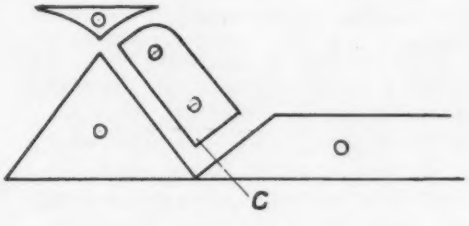


FIG. 2

WEIGHTS OF HOSIERY

Editor Textile World Record:

Please inform me what weights of hosiery are obtained by using yarn and machines of different sizes, for example:

No. 16 yarn on 176 needle 3 3/4 cylinder
No. 15 yarn on 176 needle 3 3/4 cylinder
No. 14 yarn on 176 needle 3 3/4 cylinder
No. 13 yarn on 176 needle 3 3/4 cylinder
No. 12 yarn on 176 needle 3 3/4 cylinder
No. 24 yarn on 200 needle 3 3/4 cylinder
No. 22 yarn on 200 needle 3 3/4 cylinder
No. 20 yarn on 200 needle 3 3/4 cylinder
No. 19 yarn on 200 needle 3 3/4 cylinder
No. 18 yarn on 200 needle 3 3/4 cylinder
No. 17 yarn on 200 needle 3 3/4 cylinder
No. 16 yarn on 200 needle 3 3/4 cylinder

Also give the weight for ladies' goods with a 1 1/2 to 2 inch hem knit on 176 needles and also for 200 needle goods with a 2 1/2 to 3 inch hem.

Winston (2500).

Hosiery made with the following numbers of yarn on 176 needles, 3 3/4 inch diameter weigh as follows:

16s yarn ..... ozs. 28
15s yarn ..... ozs. 29½
14s yarn ..... ozs. 31
13s yarn ..... ozs. 32½
12s yarn ..... ozs. 34

Hosiery made with the following numbers of yarn on 200 needles, 3 3/4 inch diameter weigh as follows:

24s yarn ..... ozs. 22
22s yarn ..... ozs. 23½
20s yarn ..... ozs. 25
19s yarn ..... ozs. 26½
18s yarn ..... ozs. 28
17s yarn ..... ozs. 29½
16s yarn ..... ozs. 31

Ligny.

Dyeing, Bleaching, Finishing, Etc.

SCIENTIFIC DRYING

BY CHROMIUM

The economy of drying by heat involves many factors, the chief of which are:

(1) The same amount of heat must enter the material being dried, to drive off the water it contains, whether the temperature of drying is high or low.

(2) Drying at high temperature is the quickest method, because the heat required to vaporize the water is quickly imparted to it.

(3) A great loss of heat results by the cooling of the walls of the drying chamber, as the loss from the source is proportional to the difference between the temperature inside the drying chamber and that of the outside air.

(4) Cooling of the room during charging and emptying of the material.

(5) Loss of heat by its escaping in the unsaturated air, which, of course, depends upon the amount of air passing through the material.

DRYING COTTON WARPS

The usual method is to hang them in loops inside a heated drying stove, the roof of which has a pair of ventilators, while the floor of the chamber which is of iron, has a number of rows of 4-inch steam pipes. In some cases a second row of 4 ten inch hot-air pipes are placed below the steam pipes, and these deliver air into the chamber from a furnace gas air water. The interior height of the stoves is 20 feet from floor to where the poles are fixed for suspending the warps. The warps hang over the rails in long loops reaching down to within 18 inches of the floor. When dry, the warps are removed by passing the warp end through a pot-eye in the wall of the chamber and from there to a balling machine, which draws them out in the form of a long rope. Experiments to show the cost of drying were made with 10,000 pounds of wet warps, carrying 81 per cent. of water on the dry weight. In the first trial only a small amount of warm air gravitated through the heater, and thus entered the stove, while the fan used to drive the air through was standing. Steam was turned on all night, the maximum heat of the stove being 90° F. It required 15 hours to dry the warps. Two small side windows in the stove were kept open a little to allow air to enter and assist in carrying off the moisture, the estimated amount of air passing through these openings being 44 gross tons. As the amount of condensed steam collected came to 6,851 pounds and the boilers generating this evaporated nearly 8 pounds of water per pound of coal, the equivalent of the condensed steam is (6,851 ÷ 8) 856 pounds of coal. This shows the cost of drying in a chamber heated by steam pipes, when the temperature of the room did not exceed 90° F.

Another trial with the same stove, but with a combination of steam and hot air was next tried, the working out of the figures being as follows:

Weight of wet warps	lbs 7,166
Weight of dry warps	lbs 3,654
Water present	lbs 3,512

The water was equal to 96 per cent. of the dry weight of the warps. Temperature of the outside air was 62° F. and that of the hot air from the heater 239° F. The rise in temperature in passing through the heater was 177° F. Air was driven through the heater by a fan, the rate being 1,808 cubic feet per minute, or 74,479 pounds of air in 9 hours. This weight of air appears a large quantity, but its presence is scarcely noticeable, the quantity not being sufficient to carry the moisture to obtain quick drying, as the workman found that the drying went most rapidly when the two windows were sufficiently open to allow about the same quantity of air to enter as that by the heater. The experiment lasted 9 hours, and as the

heater passed 33.2 gross tons of air into the stove, the total quantity entering was 66.4 tons. In addition to the hot air, steam was used at the rate of 484.7 pounds per hour for the whole period, making it 4,362 pounds in weight, which is equivalent to 545 pounds weight of coal. There were two hygrometers, one at the top of the warp and another at the bottom. The upper one registered 108° F., and 93° F.; the lower one, 103° F. and 90° F.; the difference between the readings at the top being 15° and that of the bottom 12.6°. An hour before the trial was finished, the side windows were closed, in order to see how much the temperature would rise at the top warp level. The hygrometer registered 132° and 113° respectively. As it required 42 pounds of air to carry off 1 pound of moisture, the two experiments show at what cost the warp drying is effected, and the drawbacks attached to this form of drying. It should be noted that the temperature for quick and economical work ought to be at least 60° higher than the best results obtained, as the water under these conditions of higher temperature is so much more easily and quickly driven off. There is no doubt the quantity of air entering the drying room appears very large when set down in figures, but in reality feels small, owing to its being distributed over such a large area. The current of air did not even move the warps. If it had done so and caused them to swing a little, the drying would have been hastened, as it would have allowed the circulating air to get between the warp threads. A further test, in which the pipes were arranged round the room caused the air to blow across the bottom of the hanging warps. Even with this the warps swung only when dry, as the current of air was not strong enough. What was required was a larger volume of air from the inside of the room to the air pipe, to reinforcing the quantity coming from the heater. This would have required another fan. This larger volume of air would have traveled further into the chamber and would have quickened the drying by causing the warps to swing in the current.

HAND DRYING

Hand drying is usually done by the warps suspending on poles inside a drying chamber, the air of which is heated by steam pipes, there being no means for ventilation beyond a couple of ventilators on the top. It is well known that as the temperature of the material and the contained water rises, the moisture begins to leap from the goods into the air. This vapor rises in the room and passes through the ventilators, even when there is no fresh air entering the stove. How this takes place is readily understood when it is remembered that a pound of water occupies about .0161 cubic feet, while a pound turned into vapor at 126° F. occupies 26 cubic feet. With the stove full of air when 1 pound of moisture leaves the suspended hanks, say at 126° F., 26 feet of either air or vapor must leave the chamber. Since the vapor is lighter than the air, it rises and escapes by way of the ventilators.

One of the best systems of drying which is, however, only followed by a very few, consists in closing the stove, raising the temperature above 130° F. and then admitting air slowly over heated pipes until the temperature rises to 180° F. This will be found to give the most uniform drying, as the water which lodges in the bottom loop of the suspended hank is at this temperature. Receiving the incoming heat first it has the best opportunity of parting with its moisture to the relatively dry air which is carried away. With some dyed yarns this procedure cannot always be followed, as a continued temperature above 90° F., in the presence of moisture, changes the shade of the more fugitive colors, particularly where the heated air comes in direct contact with the goods. Any apparatus which keeps the air in motion inside a drying stove is an advantage, especially if the moving air comes freely in contact with the suspended hanks. Tests made as to cost in fuel by drying with and without a fan inside the store, worked out as follows: In the two experiments made, the same weight of material was hung in the stove, and contained in both cases exactly the same percentage of water. With the fan

running, the relative time taken in drying was as 12 to 18 without it and the amount of fuel burnt was 476 pounds against 600 pounds, while the basis of the calculation of fuel burnt was that of 8 pounds of steam per pound of coal.

DRYING DYED WOOL

Colored wool for worsted is now dyed almost exclusively in the sliver form. Attempts without number have been made to dye and dry it in the shape of tops, but the difficulties to be overcome in drying alone are so great that it is doubtful if success is possible. When a top is wet it behaves like an impervious bulk of matter with regard to air, because the water it contains fills the interstices between the fibers, and the ball is wound so hard that the movement of this water is along the wool from the inside to the outside, or vice-versa. Nearly all dyed sliver are at present dyed in the loose form, and dried by being hung in loops over poles placed in a hot stove, air being circulated freely about them so as to cause a gentle swaying motion. The hanging is done much in the same manner as that of warps, except that the length of the loop in the case of tops is only about 3 feet as against 20 feet with warps. A good continuous method of warp drying would be of the greatest interest to the trade, as under such conditions the dry warps are soft and open besides having fewer broken ends and are flecked less in color.

In drying stoves made for continuous work, the warps are carried horizontally over a number of rollers arranged on each side of the machine, guides being necessary to ensure the threads being kept as open as possible and the surfaces of the rollers covered. The driving rollers had to be positively driven by gearing, as belts and ropes slip too much, while it has been found that the same rate of speed for all the rollers did not answer, owing to the warps lengthening as the drying proceeded and so causing slip. To get over this fault the right hand row of cylinders had each to be made 1/4 of an inch larger in circumference than the one immediately above it. This produced a gradually increasing surface speed and kept the warps tight. In the first machines made there was no provision for passing the heated air a second time over the goods, consequently a considerable loss was sustained by the air being in an unsaturated state. Under these conditions it required 10 hours to dry 1,000 pounds of warps which carried 467 pounds of water, equivalent to 46.7 per cent. Reheating apparatus for partially saturated air is one of the great features in drying on economical lines, and wherever possible heated flue gases should be utilized.

A FINISHING PROCESS FOR WOOL GOODS

An English process for finishing wool fabrics such as are used for underwear, shirts and similar garments, has recently been patented in this country. The inventor gives the following description: This process relates to the finishing of woolen materials such as are used for undergarments, shirts and the like. Such woolen materials are very frequently subjected to chemical processes for the reduction of their tendency to shrink when washed. The processes in question are well known, involving some form of chlorination of the wool and will be referred to hereinafter as the treatment in the chlorine bath. The chlorine in the bath acts as an oxidizing agent. After treatment in the bath, the goods are usually passed through a clearing bath containing substances such as antichlor for removing any excess of the chlorine used in the chlorine bath. After this treatment the goods will not shrink to any considerable extent when in use, but they are open to the great objection that they will absorb moisture much more readily than untreated materials.

It is the object of the present invention to provide a process which will make it possible for goods, after treatment in the chlorine bath, to be rendered substantially as good as untreated materials in regard to their behavior in resisting the absorption of moisture. For this purpose the goods, directly after the treatment in the chlorine bath, or after further treatment (when such is applied) in the clearing bath containing antichlor or the like, are rinsed with water as thoroughly and as quickly as possible in

order to remove all traces of the chemicals used. They are then submitted to immersion for a few minutes in a bath containing a comparatively weak solution of soap and ammonia at a convenient temperature, preferably not exceeding 50° C.

The strength of the bath is a matter of great importance, and a pure soap should be used which is free from alkali. The goods may next be scoured with soap solution or not, as may be considered preferable, and are rinsed thoroughly in water in order to clear them. Finally they are dried and finished by pressing. If white goods are to be produced the bleaching process should be an oxidizing one, carried out with a peroxide such as H_2O_2 or a metallic peroxide and this must not be applied before the treatment in the chlorine bath as is usual, but must be applied after the rinsing which follows the ammonia-soap bath. The goods are then rinsed thoroughly, dried and finished.

The invention is not limited in its application to woolen fabrics or garments already made, but it may be applied also to the wool before the spinning or to the yarn, and the process may be used for the purpose of rendering finished goods which have been treated only in the usual chlorine bath, more resistant to moisture.

The following examples will indicate how the process is carried out in practice. It is assumed that the goods are treated in lots each of about 50 lbs. weight.

When woolen goods in natural color are to be treated, they are usually first scoured thoroughly, milled and then submitted to the chlorine bath, the strength of which will vary according to the nature of the material. The goods are now rinsed thoroughly in water, and may then be submitted at once to the ammonia-soap bath. A suitable strength of this for 50 lbs. of material to be treated is as follows:—6 lbs. of soap which is as free as possible from alkalies, 5 pints of strong ammonia and 120 gallons of water. After about 5 minutes immersion in the ammonia-soap bath at say 50° C., the goods are withdrawn, scoured or not as may be preferred, with soap solution, rinsed very thoroughly in water to clear them, and finally dried and finished by usual methods.

Sometimes it may be desirable to subject the goods to a longer treatment in the ammonia-soap bath; either up to 10 minutes in the same solution, or, preferably, in two or more stages of 5 minutes each, with a rinsing operation between, a fresh ammonia-soap bath being used for each period of immersion. For most goods, however, a single immersion is quite sufficient to leave the goods in the desired condition, particularly if the chlorine bath was not too strong and if the rinsing following upon it was thorough. The treatment in the clearing bath containing antichlor also seems to be unnecessary if the rinsing is thorough, but after imperfect rinsing the chemical reagents which remain in the goods may largely neutralize the action of the ammonia-soap bath. The final rinsing or washing also must be effected as quickly as possible and must be thorough, in order that all traces of the ammonia-soap solution may be removed.

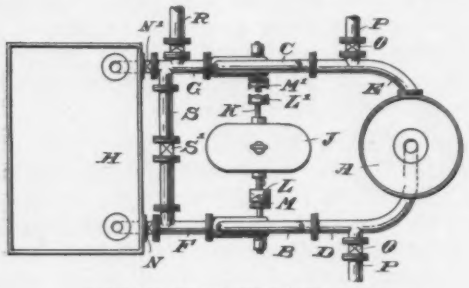
If white goods are to be produced, the treatment is identical down to the stage of rinsing after the ammonia-soap bath, but after that the goods are bleached by peroxide applied in one of the usual ways, thoroughly rinsed again, and finally dried and finished.

CIRCULATING LIQUOR IN DYEING MACHINES

The illustration shows an arrangement of pumps for circulating the liquor in automatic dyeing machines, for which a patent has recently been granted in this country. The arrangement is described by the inventor as follows: In apparatus for treating textile materials in cop, cheese or other compact form, the liquor is forced through the textile material by a single pump. The pumps used have been of the rotary, piston turbine type. It is frequently desired to force the liquor through the material from the outside to the inside and then from the inside to the outside. A single pump of the rotary vane type pemits this reversal of flow to be accomplished by reversal of the pump. This

type of pump is objectionable for use with dye liquors. Owing to its rubbing surfaces and the friction and wear set up by the presence of the dye such a pump soon loses its efficiency. The reversal of direction necessitates a reversing driving gear entailing extra cost. A piston pump has the same defects and when used for pumping liquors in both directions it has to be fitted with special valves and cross over pipes which increase the cost, and decrease the efficiency.

The rotary or centrifugal pump is most suitable for use with a dyeing plant, but has the disadvantage that it will only run and deliver its liquor in one direction. To enable such a single pump to be used for reverse flow dyeing a complicated system of cross over pipes and valves is required, efficiency being thus reduced and power wasted.



TANK FOR CIRCULATING DYE LIQUOR

In the improved arrangement the reversal of the current is obtained by using two pumps, only one of which is driven at one time, and are so disposed and arranged that one operates to circulate or force the dye through the dye chamber in one direction, and the other operates to force or circulate the dye through the dye chamber in the other direction. Both pumps are included in the same steam or current of dye and the one which is not driven has the liquor passing through it from the dyeing chamber to the suction of the driven pump. Thus to reverse the flow of dye it is only necessary to stop one pump and drive the other. The working pump draws its dye from a reserve tank placed between the two pumps. With such an arrangement the pipe system and driving gear are reduced to the simplest form and the power consumed is practically only that required to work the driven pump, as the pump which is out of use offers very little resistance to the return flow of liquor.

A represents the dyeing chamber through which the liquor has to be forced in either of two directions and in which the cheeses, cops, or the like are placed for treatment. B and C are two centrifugal or turbine pumps, connected by pipes, D and E, to the dyeing chamber, and by pipes, F and G, to a large open reserve tank, H. Each pump is so disposed that when it is driven it delivers dye to the chamber, A, and sucks it from the tank, H. J is a motor, driving wheel. It has a shaft, K, which is constantly rotated, and the ends of this shaft are provided with tooth clutches, L L^1, to gear with corresponding tooth clutches, M M^1, sliding on the ends of the pump shafts. The shaft, K, is not long enough to drive both clutches, M and M^1, at once. The clutches, M M^1, are so combined and operated and connected that they cannot both be in engagement with their opposed clutches, L or L^1, at one and the same time.

As shown in the drawing the clutch, M, of the pump, B, is in gear with the motor shaft, K, and this pump is consequently driven, while the pump, C, is not driven. The pump, B, forces dye through the pipe, D, to the chamber, A, from which it emerges through the pipe, E, and thence takes its course through the pump, C, and through pipe, G, to the reserve tank, H. From the reserve tank it again enters the pump, B, through the pipe, F. As long as the pump, B, is driven the circulation of the dye continues as described.

When a reversal in dye flows is required the clutch, M, is slid along its shaft until it is out of engagement with the clutch, L. When it is free of this latter clutch its continued movement results in the connected clutch, M^1, being slid into engagement with the clutch, L^1, and the pump, C, is now driven. This pump delivers the dye through the pipe, E, to the chamber, A, whence it emerges through the pipe, D, and thence takes its course through the pump, B, and through the pipe, F, to the reserve tank, H. From the reserve tank it again enters the pump, C, through the pipe, G. A reverse

flow of the dye is thus obtained to that effected by driving the pump, B. So long as the pump, C, is driven this reverse flow is maintained. Both clutches, M and M^1, may be moved to intermediate positions in which neither engages with its driving clutch. Both pumps are then stationary and there is no flow of dye.

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FULLING MILL WRINKLES AND STREAKS

BY ELMO

A difficulty sometimes encountered in the finishing of stock dyed goods, is that of streaky cloth, often referred to as "mill wrinkles." While these streaks develop in the fulling mills, it is not always the case that the fault originates at this point of the work, or that it can be corrected by the finisher.

The fault may and may not be in the finishing room, and this often makes it all the more difficult to overcome. Anything that tends to irregular or imperfect work in the fulling may lead to the difficulty, and sometimes the cloth comes to the finisher in a condition that is bound to give trouble in this regard. It is often plainly evident that the streaks are caused by the cloth running too continuously in the same folds or wrinkles, and sometimes streaks appear where there is no evidence that wrinkles had anything to do with them. Goods that are closely woven, and so less pliable in the fulling, are more likely to develop this trouble, and the mistake of over-crowding the warp will tend to the difficulty.

I recall a case that came under my observation of a mill in New England, running on fancy cassimeres, with a percentage of cotton, where a new designer laid out a line of work that seemed to be exceptionally attractive; but after the work got well under way, it was found that there was a plenty of trouble from streaks and mill wrinkles. The finisher took every means possible to overcome the trouble, but with little success. It afterward developed that the designer, who came to the place highly recommended, had been accustomed only to worsteds, and he had carried out the worsted idea in the construction of the cloth, and the warp was too closely laid to admit of perfect fulling. The cloth came from the loom too stiff and boardy, and in fulling it lacked pliability, the wrinkles becoming set,—sort of semi-breaks that failed to come out as the fulling proceeded. A designer who followed made a similar cloth, with the warp more open, and there was no further trouble. The change of designers was not due to the trouble,—but there happened to be a change, and the new man's methods proved where the fault had been.

If the fulling soap lacks in body, so that it fails to properly lubricate and act as a cushion, the wrinkles are less likely to change, and they become set and trouble follows. If the stock contains any acid it will surely injure the working quality of the soap with similar results. I once took charge of finishing where a line of light weight cassimeres were coming very streaky. The goods were being run double in fulling, which should not have caused the trouble; but as a temporary remedy I begun running the cloth single. This insured a more prompt and even soaping, and with a change in the soap to the better consistency, the difficulty was somewhat overcome, but it was plainly evident there was trouble at some other point. The mill was making its own shoddy, and I found that the acid from the carbonizing had not been properly removed. With a soap of extra body, it would run thin and watery in the fulling, its life seeming to be destroyed by the acid in the stock. The superintendent took measures to thoroughly neutralize the stock after carbonizing, and the result was that the trouble entirely disappeared, and I was able to go back to double fulling without any bad results.

A poor grade of oil used on the stock will sometimes produce similar streaks, by its failure to become well saponified in the fulling process.

Goods that require but little fulling and full quickly, will sometimes show streakiness from careless soaping, or an insufficient quantity of soap. If from either of these reasons the cloth is allowed to run sufficiently wet in places while other places lack in moisture, the wet places start fulling first, and will show more felt when finished, especially if the cloth does not require enough

fulling to allow it to equalize itself. It is plainly evident that goods that full slowly will be more likely to get evenly soaped before sufficient fulling takes place to show an irregularity.

An uneven tension of the warp, as sometimes appears at the end of the last cut of a warp, caused by a careless tying or a slipping of the knots made by the dresser, will cause streaks that will sometimes extend a long way into the cloth. I have seen stripes extending through all the cuts of a warp, due to the dresser allowing sections on his reel to pile up against the section pins, causing the crowding of too much warp at that point, and a corresponding high place in the warp when beamed off, and undue tension at that point in weaving. Of course, stripes of this character always show a regularity that signifies they are not due to any action in the fulling mill.

Overcrowding in the fulling will some times cause trouble. I recall a case of a mill that was running on a line of 3/4 goods, and because the mill was a large one, they loaded it more heavily than the smaller ones. They were running four pieces on a side. This was not bad, but they doubled them all, which made an equivalent to eight strings going through the rolls on each side. The result was wrinkle marks that were very pronounced. In this condition it was difficult to get the goods evenly and promptly soaped, and the crowding in the rolls was too much. While the mill was large, to accommodate heavy goods, the space between the rolls was not correspondingly large, and the eight strings was entirely too much. A change was made by running the same number of pieces, but they were put in single, and no further trouble ensued. Of course it took longer to full a set of pieces, but they were done right, and that should always be the first consideration.

When streaks and wrinkle marks appear, it is not an easy matter to at once determine the real cause, but by bearing in mind the things that may cause them, and applying the remedies, one may correct the difficulty before they become fully convinced of their origin.

A NEW PROCESS OF VAT DYEING

A process for dyeing vat colors, recently patented in this country, is described by the inventor as follows: Vat dyes are insoluble in ordinary solvents used in dyeing. To prepare these dyes for dyeing they are treated with reducing agents whereby they take up hydrogen and are converted into leuco compounds which react like weak acids and form with suitable compounds alkali salts more or less soluble in water. These alkali salts have an affinity for vegetable and animal fibers, and their solutions, according to their individual characteristics, are employed in vat dyeing in one of three ways: (1) the indigo or dipping vat method, (2) the cold vat method without dipping, and (3) the hot vat method without dipping.

The vat dyes, from which these solutions are made, may, therefore, be divided into three classes according to the way in which the solutions are employed. In dyeing with dyes of each one of these three classes difficulty has been experienced in extracting all of the dye from the dye-bath, and it has been found impracticable to dye by mixing in the dye-bath two or more dyes which require different amounts of the reducing agent, or different amounts of the solvent, or different alkali, or different temperatures for dyeing, or which belong to the different classes above mentioned, without causing a loss of a large proportion of the dyes employed.

It is the object of this invention to remedy this difficulty and to provide a process which is applicable to any vat dye of any one of the three classes named, and by which a mixture of two or more dyes of the same class or of different classes may be employed, and by which substantially all of the dye or dyes used may be extracted from the dye-bath.

The dye or mixture of dyes is first treated with sufficient alkali such as caustic soda and sufficient reducing agent, such as hydrosulphite of soda, to produce the leuco compound from the dye or mixture used and to bring the same into solution. Use an excess of alkali and reducing agent for I am then able to work a dye vat which is free from flurry, and which therefore causes no precipitation of oxidized color on the fiber, thus

eliminating the precipitation of loosely adhering dyestuff which is not as fast as the color which is thoroughly penetrated into the fiber and oxidized therein from the thoroughly reduced dyestuff.

I prefer to dye cold in order to prevent the formation of secondary reaction products from the leuco color compounds due to the action of heat upon the dye-bath. Gradually or progressively diminish the alkalinity of the dye bath, or its capacity for dissolving the leuco compound, by any suitable method, in some cases going so far as to neutralize completely the bath or even to render it weakly acid. The effect of this diminution of the solvent capacity of the bath is to precipitate or affix the leuco compound or compounds of the bath upon the fiber. In case the bath contains a mixture of leuco compounds which vary in respect to their acid functions or their solubility in alkaline solutions, such compounds will be fixed upon the fiber as the degree of alkalinity requisite for such fixation is reached in the course of the progressive diminution.

In diminishing the alkalinity of the bath, or otherwise reducing its solvent capacity for the leuco compounds, it is not necessary to remove the goods; and the color, being gradually or progressively precipitated, may be completely fixed in the fiber without lifting the latter from the bath, or dipping. As the bath is strongly reducing in character, there is no oxidation of the leuco compound until it has all been precipitated upon the fiber. The material is then removed from the bath and subjected to oxidation in the usual way.

Suitable methods of diminishing the solvent capacity of the bath are as follows, the choice of method being dependent upon the nature of the dye or mixture of dyes and upon the manner of manipulating the bath: (1) by gradual or progressive addition of a weak solution of an acid; (2) by like addition of acid salts, in which term is included such salts as the alkali metal bicarbonates, which have an acid constitution but react as alkalis to most indicators; (3) by transposition methods, whereby the caustic soda or other alkali hydroxide is replaced wholly or in part by a weaker alkali, or by an alkali having a less solvent effect upon the leuco compound, usually ammonia.

CLOTH SHEARING MACHINE

The illustrations show a cloth shearing machine invented in Germany and recently patented in this country. The inventor gives the following description: This invention relates to cloth-shearing machines of that type embodying a rotary spiral cutting member and a stationary ledger blade cooperating with the rotary member. The object is to provide a novel construction by which any

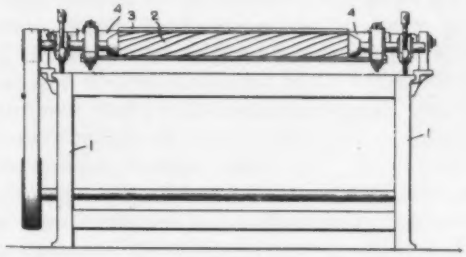

FIG. 1

wear which may occur in the bearings of the rotary spiral member will not cause a change in the relative positions of the rotary member and ledger blade.

In the operation of cloth-shearing machines of this type, the strain of the driving belt is likely to cause the bearings for the rotary shearing member to become worn. Where the ledger blade is fixed in position, any change of position of the rotary shearing element due to wear in the bearings will cause a change in the relative positions of the cutting edges of the rotary element and ledger blade. Any such change in relative position will, of course, affect the shearing operation, for if the bearings wear in such a way that the rotary shearing member is separated slightly from the shearing edge of the ledger blade, then, of course, the two members will not properly cooperate.

This new cloth shearing machine provides a novel support for the ledger blade and the rotary shearing member, so that any variation in the position of the rotary member due to wear of the bearings will not affect

the relative position of the two shearing elements.

Fig. 1 is a front view of a cloth-shearing machine embodying the new device; Fig. 2 is a plan view of Fig. 1; Fig. 3 is a side view;

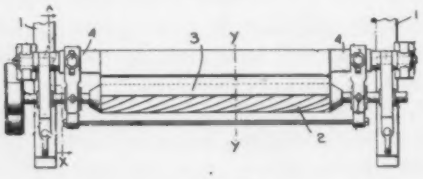

FIG. 2

Fig. 4 is a section on the line x—x, Fig. 2; Fig. 5 is a section on the line y—y, Fig. 2. 1, designates the frame on which the shearing members are mounted; 2, is the rotary shearing member having spiral blades, and 3, is the ledger blade which cooperates with the rotary member, as usual in cloth-shearing machines, said ledger blade being secured to a carrier, 4. The rotary member is mounted in suitable bearings formed in bearing members or brackets that are sustained on the sides of the frame. The shaft of said rotary member has a pulley, over which passes a driving belt, the latter being driven from a driving pulley on a driving shaft. With this arrangement the strain of the belt will tend

FIG. 4

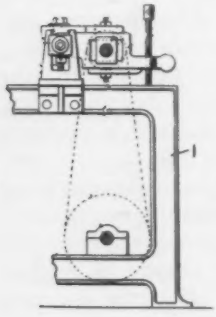

FIG. 3

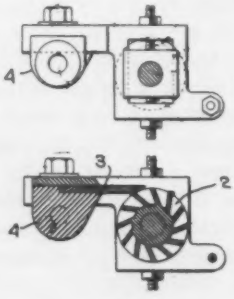

FIG. 5

to wear the lower portions of the bearings, and as the bearings wear the rotary shearing member will, of course, be displaced downwardly.

The brackets or bearing members are provided at their rear ends with boxes which are movable vertically. These boxes are retained in their adjusted positions by means of adjusting screws. The front ends of the brackets or bearing members are provided with the adjusting-screws which rest on the frame and by which the brackets can be adjusted vertically.

The carrier for the ledger blade is supported at its rear edge from the brackets, and a connection is provided between the ledger blade and the shaft of the spiral cutting element so that the proper relative position between the cutting edge of the ledger blade and the rotary shearing element will be maintained in all adjusted positions of the rotary element.

As shown, the brackets are provided with trunnions which enter recesses, formed in the ends of the carrier. The carrier has secured to each end an arm or bracket, each arm or bracket carrying a bearing through which the shaft of the rotary element extends. These arms or brackets are secured to the carrier in any suitable way as by means of bolts. The arms or brackets will maintain the ledger blade and rotary shearing element in fixed relation to each other.

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A COMPOSITION FOR BLEACHING AND CLEANING

A composition recently patented in this country has for its object the bleaching and cleaning of textile fabrics and garments in mills and laundries. The inventor states that it effectually bleaches and cleanses the articles without damaging the goods or fading the most delicate colorings, as well as saving the consumption of thirty to fifty per cent. of the soap ordinarily used, and also permitting the employment of injurious chlorides and acid bleaches to be dispensed with.

The composition consists of the following ingredients, combined in the proportions stated, viz:—calcium oxid (unslaked lime) 7 pounds, potassium carbonate 25 pounds, potassium permanganate 1 pound, ammonium chlorid (sal-ammoniac) 2 pounds, sodium biborate (borax) 12 pounds, water, sufficient quantity to make 48 gallons.

The ingredients are placed in a barrel, or other suitable receptacle, and then dissolved in four gallons of boiling water by agitation.

The remainder of the water is then added to the mixture which is allowed to stand until all solid surplus substances have been deposited upon the bottom of the receptacle. In practice only the clear liquid is used. For washing laundry a proportion of one-third of the liquid and two-thirds of neutral soap is boiled together and this mixture is used in the manner incident to the methods ordinarily employed in laundries.

While the preferred formula of the composition is given above, it must not be understood that the proportions are limited, as they can be varied to meet the requirements for the use of the composition as occasion demands.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 254

BROWN ON WORSTED DRESS GOODS

For brown on 100 lbs. worsted dress goods, make up the dye bath with

3⅕ ozs. Amazo Blue.
3⅕ ozs. Amazo Brilliant Red 2 B.
12⅘ ozs. Amazo Yellow R.
(American Dyewood Company, 80 Maiden Lane, New York City, N. Y.)
15 lbs. Glauber's Salt.
2½ lbs. Oil of Vitriol.

Enter goods at 120° F. Bring to boil in one-half hour. Boil for one hour. Rinse.

The colors used above are especially recommended for their good level dyeing properties and their satisfactory fastness for this kind of work.

Recipe No. 255

BLUE ON WORSTED DRESS GOODS

For blue on 100 lbs. worsted dress goods prepare the dye bath with

4⅘ ozs. Amazo Brilliant Blue G.
1 lb., 14⅗ ozs. Amazo Violet 12 B.
(American Dyewood Company, 80 Maiden Lane, New York City, N. Y.)
15 lbs. Glauber's Salt.
2 lbs. Oil of Vitriol.

Enter goods at 120° F. Bring to boil in one-half hour and boil for three-quarters of an hour. Rinse.

The colors used to produce the above shade are recommended for their good leveling properties and their good fastness to light.

Recipe No. 256

SCARLET ON COTTON YARN

Naphtamine Fast Scarlet R on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Naphtamine Fast Scarlet R.
(Kalle Color and Chemical Co., 530 Canal St., New York City, N. Y.)
2 lbs. Soda Ash.
30 lbs. Common Salt.

Enter at 180° F. and dye at boil for one hour.

Naphtamine Fast Scarlet R gives an excellent scarlet, possessing good fastness.

Recipe No. 257

VIOLET ON WORSTED YARN

Acid Chrome Violet R on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Acid Chrome Violet R.
(Bayer & Co., 117 Hudson St., New York City, N. Y.)
10 lbs. Glauber's Salt. (Crys.)
3 lbs. Acetic Acid.

Enter at 140° F., raise to a boil and dye at a boil for one-half hour, then add

2 lbs. Sulphuric Acid

and continue boiling for three-quarters to one hour. When bath is well exhausted add

1 lb. Potassium Bichromate

and boil three-quarters of an hour.

Acid Chrome Violet R possesses very good fastness in nearly all respects.

Recipe No. 258

GREEN ON COTTON YARN

Columbia Green 3 B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Columbia Green 3 B.
(Berlin Aniline Works, 213 Water St., New York City, N. Y.)
20 lbs. Glauber's Salt.

Enter at 180° F. and dye for one hour at 200° F.

Columbia Green 3 B possesses the characteristic properties of the direct cotton colors.

Recipe No. 259

BLUE ON COTTON YARN

Oxy Diamine Blue P R on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Oxy Diamine Blue P R.
(Cassella Color Co., 182 Front St., New York City, N. Y.)
20 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boiling temperature for three-quarters of an hour.

Oxy Diamine Blue P R possesses the property of dyeing in the cold and is therefore of value for covering the cotton in the dyeing of union materials.

Recipe No. 260

BLUE ON COTTON YARN

Naphtamine Brilliant Blue B W on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Naphtamine Brilliant Blue B W.
(Kalle Color and Chemical Co., 530 Canal St., New York City, N. Y.)
25 lbs. Common Salt.

Dye at a boil for one hour. Rinse and after treat 175° F. in fresh bath made up with

3 lbs. Blue Stone,
3 lbs. Acetic Acid

for one-half hour, then wash and dry.

Naphtamine Brilliant Blue B W when after treated with copper sulphate and acetic acid has much better fastness to washing.

Recipe No. 261

YELLOW ON WORSTED YARN

Anthracene Yellow B N on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthracene Yellow B N.
(Cassella Color Co., 182 Front St., New York City, N. Y.)
4 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt. (Crys.)

Enter yarn at 120° F., raise in one-half hour to boil, boil one hour, cool a little and add

1½ lbs. Potassium Bichromate

and boil three-quarters of an hour longer.

Anthracene Yellow B N possesses very good fastness to light and washing.

Recipe No. 262

GREEN ON COTTON YARN

Columbia Green on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Columbia Green G.
(Berlin Aniline Works, 213 Water St., New York City, N. Y.)
20 lbs. Glauber's Salt.
1 lb. Soda Ash.

Enter at 180° F. and dye for one hour at 200° F.

Columbia Green G possesses the characteristic properties of the direct cotton colors.

Recipe No. 263

RED ON COTTON YARN

Azidine Fast Red E 4 B S on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Azidine Fast Red E 4 B S.
(Bischoff & Co., 451 Washington St., New York City, N. Y.)
25 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Azidine Fast Red E 4 B S possesses good fastness to strong mineral acids. The dyeings will stand boiling in an acid dye bath without tinting the wool. It is very easily soluble and therefore recommended for machine dyeing. Also recommended for dyeing of artificial silk.

Recipe No. 264

BLACK ON COTTON YARN OR HOSIERY

Buffalo Formal Black on 100 lbs. cotton yarn. Prepare the dye bath with

6 lbs. Buffalo Formal Black.
(National Aniline Co., 100 Williams St., New York City, N. Y.)
20 lbs. Glauber's Salt.

Enter at 160° to 180° F., bring to a boil and boil 30 minutes. Then after treat in a bath made up with

4 lbs. Formaldehyde,
1 lb. Acetic Acid,

entering at 180° F., bringing to a boil and boiling for 20 minutes. Finally rinse in cold water and wash in a separate bath containing about 3 lbs. of any neutral soap at a temperature of 50° F.

Buffalo Formal Black gives an excellent black for the dyeing of cotton raw stock and hosiery. The amount used may be considerably reduced in subsequent baths.

Recipe No. 265

YELLOW ON WORSTED YARN

Milling Yellow R G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Milling Yellow R G.
(Bayer & Co., 117 Hudson St., New York City, N. Y.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 120° F., raise slowly to a gentle boil and dye at a boil for one-half hour, then add

2 lbs. Acetic Acid

and boil one-half hour longer.

Milling Yellow R G possesses good fastness to alkalies, washing and milling.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

"Slugless" Comber Cleaner. William Firth, 200 Devonshire St., Boston, Mass., is introducing a cleaner for combers which cleans without stopping them, thus giving increased production. It is called "slugless" because it cleans by suction, thus eliminating the usual danger of slugs getting into the work.

Brazing and Repair Outfit. William Firth, 200 Devonshire St., Boston, Mass., is successfully introducing an outfit for textile machinery repairs. It is known as the "Mendall." It is a steel cutting, brazing, soldering and carbon removing outfit and with it any broken or worn part of the machinery equipment can be mended and put back into service within a few hours.

Softener for Sizing. The David McMeekan Mfg. Co., 1070 Pacific St., Brooklyn, N. Y., is putting on the market a preparation called "Thistle Tallow Compound," which is a blend of high-grade tallow with vegetable oils, no mineral oil being contained in the mixture. It is claimed to give increased weight and strength to yarn, does not ferment nor turn rancid, and tends to keep starch mixture sweet and clean and prevent flaking.

Cotton Waste Mule. Dobson & Barlow, Bolton, England. An improved mule for spinning cotton waste yarn.

Washing Printing Rollers. Joseph T. Rawsthorne, Shaw Lane, Dinting, near Manchester, England, has brought out an apparatus for washing printing rollers which is said to save much labor besides making an improvement in the work.

A Humidifier and Ventilator. A. W. Jackson, Clifton Street, Burnley, England, has recently brought out an improved apparatus for ventilating and humidifying factories.

Woolen Condenser. The Societe Anonyme Celestin Martin, Ensival, Belgium, has recently brought out an improved condenser of the Bolette type for woolen cards.

Pattern Chain for Loom. Gustav Ott, Langnau, Zurich, Switzerland, has recently brought out a device for weaving long patterns.

Spinning Mule. Paul Bourcart, Paris, France. An improved mechanism for operating at variable speed the carriage of spinning mules.

Bearing for Drying Machine Cylinders. R. R. Roberts, Ltd., Bury, England. An improved doll-head or gland bearing for drying machine cylinders Durability and preventing the escape of steam are among the claims.

Band Tension Tester. John Nesbitt, Market St., Manchester, England. A device for testing the tension on spindle bands. The band is removed from the spindle and attached to the whorl on the tester. The tension is indicated by a pointer and a graduated scale.

Guide for Cloth. Theodor Kamps, M.-Gladbach, Germany. A device for guiding cloth to tentering and similar machines.

Spooler. Rudolph Voigt, Chemnitz, Germany. A machine for winding yarn on cops. A number of improved features are claimed.

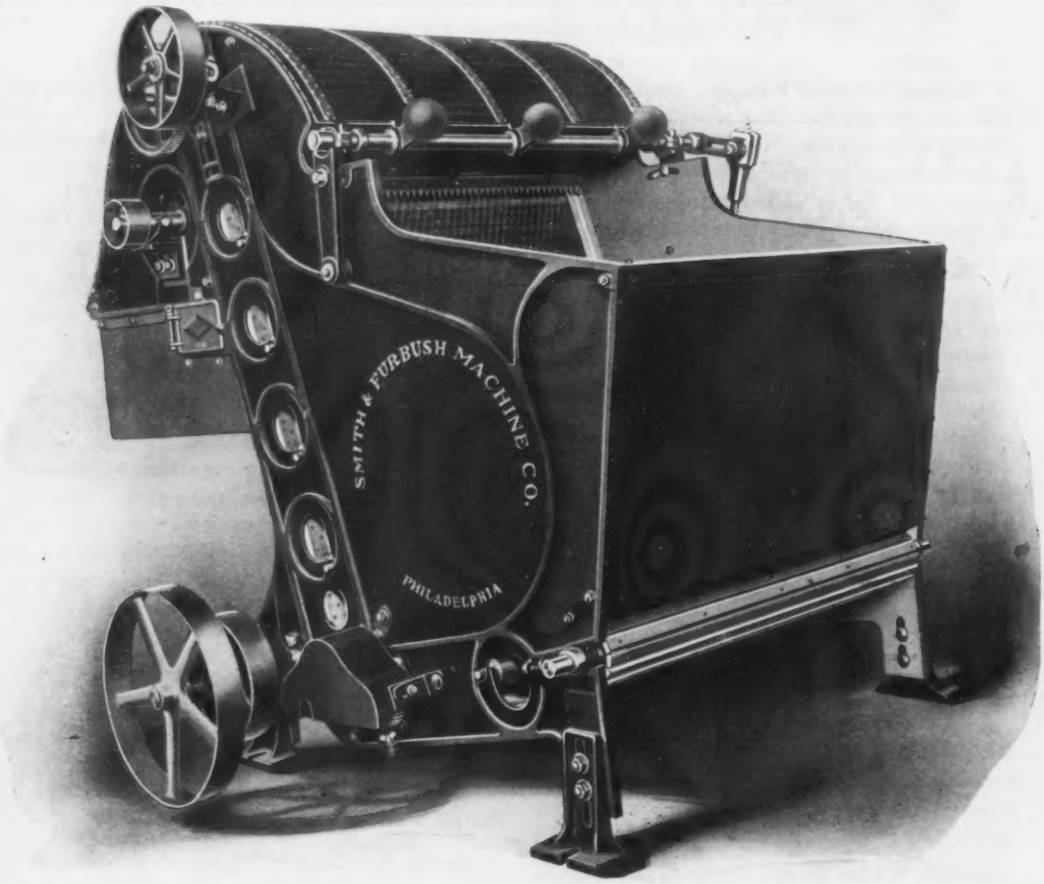
Guide for Cloth. Seiler's Maschinenfabrik, Liegnitz, Germany. An improved device for guiding cloth to finishing machines.

Opener for Piece Goods. Wwe. A. Deck, Dornach, Alsace. A machine for opening and conveying wet cloth in the open width.

AN IMPROVED PICKER FEED

The illustration shows an improved picker feed built by the Smith & Furbush Machine Co., Philadelphia, Pa. The builders offer it to the trade as one of the strongest, simplest and best machines of the kind on the market for feeding al kinds of pickers, openers, lumpers, willows, duster and fearnaughts. It is also used for feeding wool washers, but for this purpose it is built with a high top so that the wool will clear the comb before the beater strikes it. This feeder is built practically of all iron and steel, making it durable and fireproof. The only wood is that used for the apron slats. The girts are of structural steel, the panels of sheet steel and the idler rollers of steel tubing. The frames are heavy castings, well ribbed to keep them straight.

The box for holding the stock is much larger than is usual in these machines. The apron rolls are all accessible and can be readily removed when necessary to renew the aprons. Self-aligning ball and socket sleeve bearings have been provided, allowing the machine to align itself to any settling and to run on less power. Gear covers are provided to prevent accidents. The apron slats are provided with steel wearing strips where they rub against the guides.



AN IMPROVED PICKER FEED

The feeder is built in any width desired. It is 7 ft. 2 in. deep, but part of this over-

hangs the feed apron of the machine to be fed. The speed of the machine can be readily adjusted to suit the work in hand. The spike apron drive is arranged so that the gears can be changed without changing the length of the belt.

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A MOTOR DRIVEN UNIVERSAL TESTER

The Navy Supply Department is called upon for a great variety of materials and as the custom is to purchase all goods by specification, the inspection and testing of purchases is no small task.

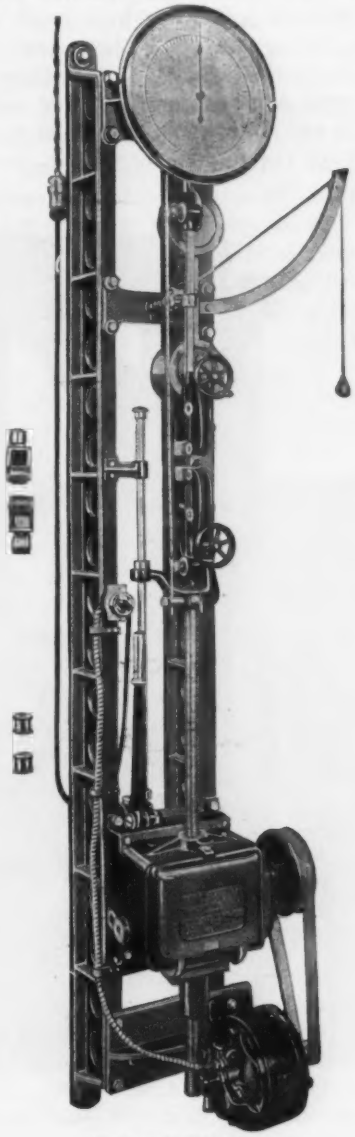
To facilitate this work a special testing machine has been built for them by Henry L. Scott & Company of Providence, R. I., which has a wide range of work. It will test yarn in leas, plied yarns, single strands of twine, cord, gut, etc., cloth, braids, tape, elastic fabrics, rubber and all such materials. This is probably the most universal testing machine ever produced in this country. It is mounted on heavy iron rails and fastens to the wall. A 1/6 h. p. electric motor on the frame furnishes the power for the test, driving the stretching screw at the rate of 12 inches per minute. The machine reverses automatically and returns at high speed to its normal position where it stops ready for another sample.

No springs are used that can influence the test, as the resistance to the pull on the sample is obtained by weights upon a swinging pendulum arm. The lower of these two weights is removable, making a sensitively poised machine for light materials. The rows of graduations on the dial provide for the different settings and the same pointer answers for both. The pointer remains at the position of the break until reset by the operator.

Very little effort is required to make a test or to reset the machine. The motor-switch, starting lever, and control rod are all located near the left side and are all easily reached with one hand, leaving the other free to adjust the sample and to reset the pointer when the test is completed.

All gears and moving parts are so protected that there is no danger of entangling the samples or injuring the operator. All parts of the machine are built to U. S. standard sizes and each unit is attached to the frame from the front.

This is but one of several machines which

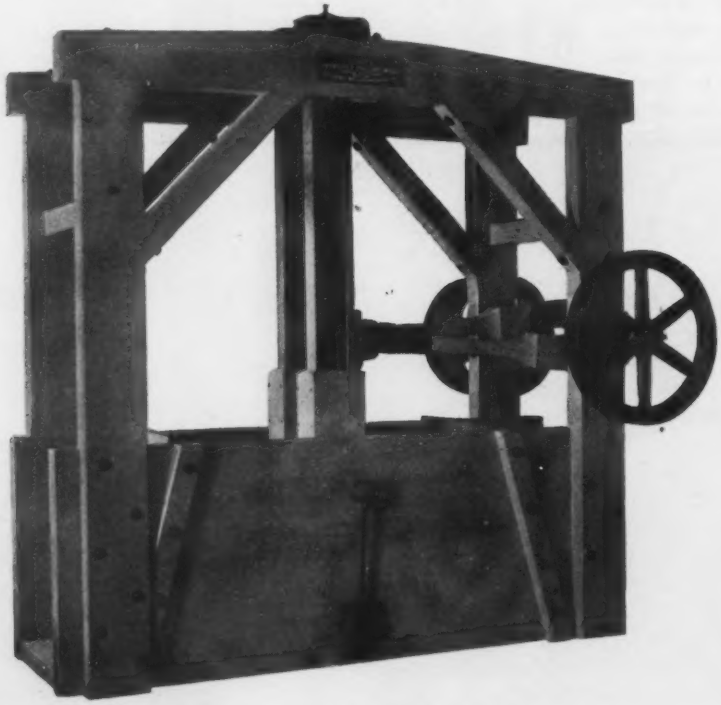


THE SCOTT MOTOR DRIVEN UNIVERSAL TESTER

Henry L. Scott & Co. have recently added to their line. Their new literature covering rubber and tire fabric testers shows an interesting contrast to the testers they built in 1899.

FULLING AND WASHING MILL FOR KNIT GOODS

The illustration shows an improved portable fulling and washing machine especially designed for treatment of knit goods of all kinds including hosiery, jackets, caps, lumbermen's felt boots or felt cloth. These machines have a capacity of carrying batches of 100 to 125 pounds and operate at a speed of 90 to 100 revolutions per minute. Larger



A FULLING AND WASHING MACHINE FOR KNIT GOODS

size machines are made for carrying a greater quantity of goods, as may be required. The hot and cold water connections are made through specially prepared water ways on the rear side of the machine; being so taken into the body of the machine through spray outlets, the entire surface of the goods in each end of the machine receive a uniform flow of water, the mixing valves being so manipulated as to deliver water at any temperature desired. These machines are so constructed the beaters will run parallel with each other and the sides of the tub, overcoming what has heretofore been a source of wear on these parts and a cause for goods getting caught and damaged, and making the machine run much easier, with less power, and without risk of broken beater arms. All machines are erected, adjusted and operated before leaving the works, explicit instructions given for their erection, so that any mechanic will be able to install them without difficulty. The particular feature of merit is the provision for convenient and permanent adjustment for all wearing parts and perfect alignment of beaters, insuring long service and convenient operation.

This machine is built by Sargent & Tufts Mfg. Co., a new firm succeeding to the business of William C. Bull at Bennington, Vt. Mr. Bull has for more than twenty-five years made a specialty of fulling and washing machines for knitting and felt mills. The new

firm will continue the line he has manufactured which includes several types of machines, not only for handling the made-up garments, but also for washing the cloth in the roll. They build a large type of mill for scouring and fulling felt cloths, also dye tubs, vats, mill trucks, etc.

Another specialty for which Mr. Bull was known throughout the trade was the manufacture of forms or boards for the drying of knit garments. They make these either for single pieces or union suits as well as for hosiery, gloves and sweaters.

PAPER TUBES FOR WINDING CLOTH

There is a rapidly increasing tendency to put up cloth in rolls to meet the convenience of the subsequent user who may slit it into narrow widths or who may wish to lay it out in several thicknesses on the cutting tables, as well as for the convenience of the bleacher and dyer. There has therefore come about a demand for tubes for winding cotton, woolen, worsted and silk cloth as well as rubber and artificial leather. Wooden rolls have been used but these are so expensive that for economy's sake they are shipped back again to the mill. This is a bother and expense and repeated shipment to and fro does not improve their usefulness.

The Pairpoint Corporation, New Bedford, Mass., have perfected and are supplying large quantities of paper tubes to meet this growing demand. They are making hard, substantial paper tubes of accurate size and proper finish which will take the material to the user without crushing or collapsing. They are made of any diameter and length to suit the requirements and the advantages of a hollow paper tube combining hardness, lightness and strength, as well as accurate size are apparent. They are so inexpensive that they need not be returned, so that the saving over wood rolls is considerable. The variety of sizes range from 15 inches in length to 72 inches and 3/4 of an inch to 4 inches in diameter. A number of mills are taking these cloth tubes in carload lots. Some bleachers are using them in connection with continuous bleaching process. The

THE PAIRPOINT PAPER TUBES FOR WINDING CLOTH

rolls wound on these tubes are placed on a stand so that the cloth is readily unwound, passes through the bleaching process and then re-wound on the tubes as it emerges, making a continuous process without handling. When one roll is exhausted it is only necessary to sew on the head end of another.

The Pairpoint Corporation will send a sample tube to any manufacturer or dyer or bleacher who is interested in this subject. They have specialized on the needs of the textile manufacturing industry for the past twenty-five years, and owning and operating their own paper mill which makes paper especially adapted for tube making, are able to meet the most exacting requirements and in any quantity.

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ROSE LABEL MACHINE

The National Marking Machine Co., Cincinnati, Ohio, announces that it has taken over the manufacture and sale of the the Rose Label Tape and Patch Sewing Machine, which was formerly manufactured by the Rose Label Machine Co. of Grand Rapids, Michigan, and orders in the future for their machines or repair parts should be sent directly to them. They are in a position to fill these orders promptly as their facilities for manufacturing the machine will be greaty improved over the past. The Rose patented process patch and labels will be manufactured and prepared as before by the Rose Label Machine Co. of Grand Rapids, as they will retain the patch end of the business, but the National Marking Machine Co. will handle these in connection with the machine end of the business and orders may be placed with them and executed promptly.

Visitors at the Knit Goods Exhibition in Philadelphia in the past two years have had opportunity to inspect the work of the Rose Label Sewing Machine, which has been brought to a high state of development and affords a rapid, neat and economical method of sewing on labels and patches.

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The value of the total exports of silk goods from Switzerland increased from $21,715,781 in 1913 to $22,283,008 in 1914.

THE NEW WESTON PORTABLE ELECTRICAL TESTING INSTRUMENTS

The need of a dependable set of electrical measuring and testing instruments in mills operated by electric power has become a

MODEL 310 SINGLE-PHASE AND DIRECT CURRENT PORTABLE ELECTRODYNAMOMETER WATTMETER

necessity. Electrical engineers know how important it is to determine whether motors are efficiently loaded and what it costs to overload or underload them continuously. They also know what amount of power can be consumed in poor shafting bearings, and that it is of advantage to test for "drop" or

MODEL 370 A. C. AND D. C. PORTABLE ELECTRODYNAMOMETER AMMETER

grounds on the electrical distribution system and know that lamps are being used at the proper voltage. An accurate knowledge of all these things means economy, but the usefullness of testing instruments extends still further, into the power plant, affording means of testing switchboard, instruments, generators, etc. It is to meet this need by mill owners that the Weston Electrical In-

strument Co. have developed their portable instruments of precision.

The distinctive merits of each of this group of Weston instruments are briefly as follows:

Model 310, single-phase and direct current portable electro dynamometer wattmeter: Guaranteed to an accuracy of 1/4 of 1 per

MODEL 329
POLYPHASE WATTMETER

cent. on either A. C. or D. C. circuits. They can be used on circuits of any commercial frequency without appreciable error.

They are provided with double ranges for both current and voltage circuits. All current ranges can be used for 100 per cent. overload indefinitely without introducing error.

MODEL 341 A. C. AND D C. PORTABLE
ELECTRODYNAMOMETER VOLTMETER

They have an extremely low moment of inertia and are effectively damped. Indications are independent of room temperature and the instruments are shielded from external magnetic fields.

The scales, which are 5 1/4 inches long, are uniform throughout their entire length, a characteristic of great importance. Each scale is hand calibrated and provided with a mirror over which the knife-edge pointer travels and pointers are equipped with a simple zero setting device.

Model 370, A. C. and D. C. portable electrodynamometer ammeter: An instrument of precision that will indicate with equal accuracy (guaranteed 1/4 of 1 per cent.) on either A. C. or D. C. circuits. They can be used on circuits of any commercial frequency without appreciable error.

Double ranges are provided for all instruments standardized in amperes. Milliammeters are furnished in single range only.

Their movable systems have an extremely low moment of inertia. They are effectively damped; indications are independent of room temperature and the instruments are shielded from external magnetic fields. Each scale, 5 1/4 inches long, is hand calibrated and provided with a mirror, over which the knife-edge pointer travels and pointers are equipped with a simple zero setting device. Owing to the principle of operation these instruments cannot be made with scales uniform throughout their entire length, but the upper four-fifths portion of scale is remarkably equalized.

Model 329, portable polyphase electrodynamometer wattmeter: An instrument of precision, guaranteed to an accuracy of 1/2 of 1 per cent., full scale value, on A. C. circuits of any frequency to 133 cycles per second, and any wave form. They can be used on circuits of any commercial frequency as high as 500 cycles, without appreciable error.

Double ranges are provided for both current and voltage circuits. All current ranges can be used for 100 per cent. overload indefinitely, without introducing error.

Their movable systems have an extremely low moment of inertia and are effectively damped. Indications are independent of room temperature and the instruments are shielded from external magnetic influences.

The scales which are 5 1/4 inches long, are uniform throughout their entire length, a characteristic of great value. Each scale

is provided with a mirror over which the knife-edge pointer travels and the pointers are equipped with a simple zero setting device.

Model 341, A. C. and D. C. portable electrodynamometer voltmeter: An instrument of precision that will indicate with equal accuracy (guaranteed 1/4 of 1 per cent.) on either A. C. or D. C. circuits. They can be used on circuits of any commercial frequency without appreciable error.

Double ranges are provided in this model.

Their movable systems have an extremely low moment of inertia. They are effectively damped; indications are independent of room temperature and the instruments are shielded from external magnetic fields. Each scale, 5 1/4 inches long, is hand calibrated and provided with a mirror, over which the knife-edge pointer travels and pointers are equipped with a simple zero setting device. Owing to the principle of operation these instruments cannot be made with scales uniform throughout their entire length, but the upper four-fifths portion of scale is remarkably equalized.

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ASBESTOS

Fifty years ago there was practically no asbestos industry. Today the yearly output runs well up into the millions of dollars in America alone, while every civilized community in the world uses the mineral in various forms.

Attention was directed to the large deposits of asbestos known to exist in Canada, particularly in the eastern townships of Quebec Province. This region is today the principal and almost the sole source of supply for the world's consumption, as although asbestos is found in many other countries, it is either unsuitable for manufacturing purposes or else the difficulties of mining and transportation have tended to greatly restrict the output.

Asbestos lies in veins or pockets varying in width from 1/2 inch to 4 1/2 inches, sandwiched in between layers of hard, semi-volcanic serpentine, which in this particular section is exposed on the surface of the ground at many points.

Owing to the irregularity of the veins, mining by means of shaft or tunnel is practically impossible and the open quarry system is almost universal, despite the drawbacks incidental to bad weather and the long winter season.

The extraction of the asbestos involves the removal of a great deal of valueless serpentine rock. Frequently as much as ten or even twenty tons of waste is removed to secure one ton of asbestos ore. This naturally adds considerably to the cost of the finished product.

The crude asbestos, as mined, is a rough block often containing numerous impurities, such as sand, rock, traces of iron and other metals. All of these must be removed before the actual manufacturing stage is reached.

From the floor of the mine the crude material is conveyed by a cable-way to the ore bins, where it is roughly sorted into various grades. The finest pieces are first hand-treated with hammers, which removes the external impurities. This process is known as "cobbing." The lower grades are sent direct to the crusher, following which in both instances they go through the following additional processes:

Crushing by powerful machinery of the Blake or rotary types.

Drying by centrifugal machinery to extract the superfluous moisture.

Fiberizing or breaking up the fiber into threads in similar manner to the beating of flax and hemp.

The fiberized asbestos goes thence to a "cyclone," which stirs it up, agitates it violently with blasts of air and in the end tosses the lighter silker fibers one way and the coarser ones another, while the dust and refuse fall out below.

From the "cyclone" the fine fibers drop into a shaker, which further agitates and separates them. Thence they are lifted by powerful fans. The finer particles traveling farthest are caught in one compartment while the less fine are separated into various grades. This completes the milling process

and the crude asbestos is now ready for manufacturing purposes.

Chemically, asbestos is a silicate of magnesia, with slight traces of other minerals, combined with a variable percentage of water. The larger the proportion of combined water the longer and more flexible are the fibers. It is this quality which makes the Canadian asbestos superior to any other.

Asbestos possesses a faculty unique among minerals, that of being spun and woven into thread and cloth. It is also capable of being felted, but unlike all organic fibers which are tubular in their formation and therefore easily twisted without breaking, asbestos is non-tubular and for a long time this threatened to be a stumbling block in the way of its manufacture into textiles.

The list of possibilities of asbestos manufacture is far from being exhausted by textiles.

The engineer is indebted to it for packings, for valves, pistons and joists, non-conducting coverings for boilers, pipes, steam chests, and all heated surfaces, brake blocks, stack and flue ducts and linings and a variety of minor articles. Wherever heat begins to show a tendency to become unruly, asbestos can be depended upon to curb it.

The electrician and electrical engineer owe a great deal to the introduction of asbestos because it is the base of many of the best non-conductors of electricity yet discovered.

More recently, under the name of "Transite" and "Transite Ebony" the H. W. Johns-Manville Company have introduced two kinds of asbestos "Wood," which is being largely used for switchboard purposes and a variety of other electrical uses, including station, street car and railway paneling, and flooring, telephone and motion picture booths, etc., for which its ease of working, lightness and fireproof qualities make it specially suited. It is today almost possible to build a fireproof asbestos house. At any rate the ordinary house may be walled, ceiled, floored and roofed with asbestos boards, shingles and felts, while all fireproof roofings have a basis of asbestos. Asbestos is used also as a siding for bungalows, garages and other small buildings. Larger houses are plastered with asbestos stucco, roofed with asbestos shingles (which may also be used as siding) and may be painted with fireproof asbestos paint.

By combination with various asphalts and portland or hydraulic cement, its field is greatly widened and a great number of additional products are added to the list.

The H. W. Johns-Manville Company was one of the earliest to recognize the immense future possibilities of asbestos, and from the first days of the industry this firm has been prominently identified with the growth and development of the modern demand for asbestos products. We are indebted to them for these brief outlines of the industry.

THE MANUFACTURE OF ARTIFICIAL LUSTROUS THREADS BY THE VISCOSE PROCESS

BY WARREN F. COOPER

A Paper Presented at the Fourteenth Annual Meeting of the Alumni Association of the Philadelphia Textile School. All rights reserved

"Artificial silks" have assumed such importance in the manufacture of textiles that a brief outline of one of the chief methods employed for their production may be of interest.

Though the principles involved and the methods employed in all of the processes are common knowedge among those versed in chemical technology, there are, however, many little working details upon which successful operation depends. A knowledge of these details is carefully guarded, as it has been secured only by the expenditure of large sums of money, much labor and many failures.

The following outline covers briefly all of the important operations, omitting, of course, such details as mentioned above.

The base of the artificial fiber is cellulose, either in the form of cotton or wood.

At present, in actual practice, wood is used, though cotton may be employed, and, in fact, produces better silk, but, on account of certain working conditions, has not been adopted.

The raw materials, bleached sulphite wood-pulp, is procured chiefly from Norway and Austria, though American wood-

pulp could undoubtedly be used by slightly changing the present working practices.

The cellulose is first converted into "alkali cellulose" by treatment with an excess of 17.5 per cent. sodium hydroxide solution for several hours.

This is known as the "wet process" of mercerization and is preferred to other methods for the reason that the temperature, which is an important factor, is more readily controlled. Elevation of temperature causes decrease in mercerization.

The pulp is then squeezed in large presses until it contains about three times its original weight of the solution.

The pulp is then "milled;" that is, finely ground, and stored in underground vaults, or "caves," to undergo further mercerization by the caustic alkali allowed to remain in it.

The time of storage varies with the kind of pulp used and ranges from 70 to 150 hours.

The duration of the mercerizing process has considerable influence on the subsequent treatment.

The "aged" mercerized pulp is next treated in closed revolving digestors with 30 to 40 per cent. of its original weight of carbon disulphide. This converts it into cellulose xanthate. After the proper point of "xanthating" has beeen reached, the mass is diluted in large mixers with dilute sodium hydroxide solution, with the addition of some "stalleizer" to prevent decomposition and mixed to the desired fluidity. The solution of cellulose xanthate so obtained is then filtered to remove foreign matter, such as undissolved fibers, etc., and then stored in large tanks at a low temperature to further "age." The time of this second ageing is dependent upon the kind of wood pulp employed, the degree of mercerization, the temperature, etc., and varies from 100 to 150 hours. The resulting product is a brownish orange colored, viscid fluid, for which reason it is given the name of "viscose."

The mechanical operation of converting the viscose into filaments follows and, in brief, consists in forcing the solution, by pressure, through fine orifices, known as "spinnerets" into a coagulating liquid, which converts the viscose into a continuous gelatinous strand. A number of these filaments are collected together, which number, in conjunction with the diameter of the orifices, determines the size or denier of the product.

The threads so produced are opaque and lusterless, and after reeling into skeins are washed thoroughly to remove all adhering coagulating liquid and then treated with a weak solution of sodium sulphide, which has a solvent action on the free sulphur precipitated in the fiber and which causes the latter to be lusterless. After all the sulphur has been dissolved, the sodium sulphide is completely removed by washing, with the result that the product acquires a high luster, in which form it is put on the market. Owing to the fact that viscose silk readily absorbs moisture, causing a diminution in tensile strength while in the moist condition, it is advisable that the humidity in rooms where it is handled should not exceed 63°, otherwise considerable difficulty is liable to be experienced in its proper working.

For knitting purposes, in order to prevent chafing of the thread in passing through the needles, very satisfactory results having been obtained by the application of a light stainless oil during the winding.

For weaving, the product should be sized either with gelatine or starch, both of which are extensively employed, in order to prevent chafing when the "silk" passes through the heddles or reeds.

Of the American cotton brought into Barcelona during the campaign year 1913-14, 144,569 bales were sent from Galveston, 60,874 bales came from Savannah, 35,158 bales were sent from New Orleans, 18,459 bales were shipped from New York, 6,900 from Charleston, 6,356 from Wilmington, and 50 bales from Pensacola.

The manufacture of cotton goods in India has increased from 536,960,200 pounds in 1897 to 988,027,318 pounds in 1913. This is equal to a consumption per head in India of 3.63 pounds, or, roughly speaking, 14 yards per inhabitant.

Personals

William Blackwood, for 15 years employed by the Bradford Mills of Germantown, Philadelphia, has resigned his position as designer and assistant manager of that concern to take the management of the Fern Rock Woolen Mills, Alleghany Ave. and Trenton Ave., recently acquired by the Cleveland Worsted Mills of Cleveland, Ohio.

H. P. Malison, formerly superintendent of the Bradford Mills, Germantown, Philadelphia, Pa., has accepted a position with the Cleveland Worsted Mills, Philadelphia, Pa.

George Daniels, president of the Daniels Worsted Mills, West Rutland, Mass., has severed his connection with that company.

Herbert Hopkins, overseer of dyeing at the Kezar Falls Woolen Company, Kezar Falls, Me., has resigned his position with that company.

John Elwood has severed his connection with the Farwell Bleachery, Lawrence, Mass. He has been overseer of the bleaching department. He was presented with a beautiful heavy gold chain and charm and traveling bag. Harry Metcalf, overseer of the dyeing department voiced the sentiments of the help in Mr. Elwell's department and made the presentation.

R. B. Hunt has accepted a position as superintendent of the Mississippi Cotton Mills, Moorehead, Miss. He comes from Columbus, Ga.

C. W. Nipper has accepted a position as overseer of spinning and spooling with the Prospect Mills, Batesville, S. C.

W. K. Baldwin has accepted a position as overseer of carding at the Cherryville Cotton Mills, Cherryville, N. C.

W. P. Loftis, overseer of spinning for the Holt-Williamson Manufacturing Company, Fayetville, N. C., has accepted a position as superintendent of the Iva Yarn Mills, Laurel Hills, N. C.

O. L. Derrick, superintendent of the Harris Mills, Rock Hill, S. C., has resigned his position to accept a position as overseer of carding and spinning in the No. 1 mill of the Riverside Mills at Danville, Va.

J. A. Moore, secretary of the Harriet Cotton Mills and the Henderson Cotton Mills of Henderson, S. C., has been appointed manager of the Paterson Mills Company, Roanoke Rapids, N. C.

Guy Templeton has accepted a position as overseer of finishing for the Patrick-Duluth Woolen Mills, Duluth, Minn. He was formerly employed by the Berkley Woolen Mills, Martinsburg, W. Va.

Fred H. Birkby has accepted a position as overseer of dyeing and wet finishing for the Bradford Mills, John and James Dobson, Germantown, Philadelphia, Pa.

William H. Ryder, Jr., has accepted a position as overseer of the finishing department for the Waterman Worsted Company, Putnam, Conn. He was formerly engaged at East Madison, Me.

William D. Waldie, overseer of dyeing for the Holden-Leonard Company, Bennington, Vt., has resigned his position with that company.

A. C. Frederick has accepted a position as overseer of dyeing for the Holden-Leonard Company, Bennington, Vt. He comes from Pittsfield, Mass., and held a position as overseer of dyeing for the Pontoosuc Manufacturing Company of that city for several years.

Hugh B. Fraser has secured a position with the Annevar Dyeing and Finishing Mills operated by Cleveland Worsted Mills Company at Ravenna, Ohio, to take charge of their finishing department. He was formerly employed by the National & Providence Worsted Company, Providence, R. I.

John D. Woolley has been appointed superintendent of the weaving department for the Warren Manufacturing Company, Warren, R. I. He was formerly overseer of weaving at the Butler Mills, New Bedford, Mass.

Harry Haggerty has resigned his position with the Suffolk Knitting Company, East Boston, Mass., where he had charge of the stitching department.

T. H. Driscoll, overseer of dyeing and Wet Finisher for the Bradford Mills, John and James Dobson, Germantown, Philadelphia, Penn., has resigned his position with that company.

J. H. Redmond, designer for the Broad Brook Company, Broad Brook, Conn., has been promoted to the position of superintendent.

Howard A. Emsley, assistant superintendent for the Wuskanut Mills, Farnumsville, Mass., has resigned his position as superintendent of the Daniels Worsted Mills, West Rutland, Mass.

Joseph H. Ridings has been transferred to the Armes Mill American Woolen Company, Skowhegan, Me., from the Washington Mills, Lawrence, Mass., as overseer of their finishing department.

Henry J. Brouard, president of the Chapel Mills Manufacturing Company, Cherry Valley, Mass., for the past 18 years, has resigned his position as president. Channing Smith, treasurer and agent, succeeds Mr. Brouard as president. Albert W. Lombard, secretary, was re-elected. Mr. Brouard will still remain as one of the directors.

George A. Coleman, overseer of the Cloth Shipping Department of the Arlington Mills, Lawrence, Mass., has resigned his position with that company. He was presented with a gold watch by the help in his department.

A. K. Pratt has accepted the position of overseer of the weaving department for the West

Boylston Manufacturing Company, South Royalston, Mass. He was formerly expert in the loom department in the Whitin Machine Works, Whitinsville, Mass.

David Byars, overseer of weaving for the Wuskanut Mills, Farnumsville, Mass., has been appointed assistant superintendent. John F. O'Neil, formerly second hand in the weaving department, has succeeded Mr. Byars as overseer. E. Barton Seagraves has been given the position as second hand.

John Lees, overseer of weaving at the Hathaway Mills No. 1, New Bedford, Mass., resigned his position with that company and was presented with a purse of money by the help in the weaving department.

George A. Coleman, for many years head of the cloth department of the Arlington Mills, Lawrence, Mass., has resigned his position with this company. He is succeeded by Michael J. Sheridan, who was an assstant in the department.

J. D. Templeton, overseer of carding and spinning at the No. 1 Mill of the Lancaster Cotton Mill, Lancaster, S. C., has been transferred to a much larger and better paying position with the No. 2 Mill in charge of their entire spinning.

Samuel S. Parker has accepted a position as overseer of knitting for the Williamsburg, Va., Knitting Mills.

B. D. Eads has been appointed overseer of carding for the Apalache Mill of the Victor Manufacturing Company, Arlington, South Carolina.

E. C. Geer, overseer of spinning department of the Ottoroy Mills, Union, South Carolina, has been promoted to the position of superintendent.

G. H. Fairbanks has resigned his position as superintendent of the Fairfield Mill, Hampton Cotton Mills Company, Winnsboro, South Carolina, and accepted the position of superintendent of the Granby Mills, of the Hampton Cotton Mills Company, Columbia, South Carolina.

P. A. Gwaltney has resigned his position as superintendent of the Holt Williamson Manufacturing Company, Fayetteville, North Carolina, and accepted a similar position with the Marlboro Mills Nos. 1 and 2 of McColl, North Carolina.

E. L. Goble has accepted a position as superintendent of the Jonesboro Union Mills, Jonesboro, Tenn. He comes from China Grove, North Carolina.

J. H. Neal has accepted a position as overseer of spinning, spooling, warping and twisting for the Cherokee Falls Manufacturing Company, Cherokee Falls, South Carolina.

W. T. Clayton, superintendent of the Jonesboro Yarn Mills, Jonesboro, Tenn., has resigned his position and accepted one as assistant superintendent of the Selma Manufacturing Company, Selma, Alabama.

Oscar Reeves has been appointed superintendent of the Fairfield Mills of the Hampton Cotton Mills Company, Williamsburg, South Carolina.

A. F. Griffin, Agent of the Hoosac Worsted Mills, North Adams, Mass., has been appointed agent of the Daniels Worsted Mills, West Rutland, Mass. He will have entire management of both the Hoosac Mills and Daniels Mills.

John Riley, overseer of mule spinning for Robert Beatty & Company, Philadelphia, Pa., has resigned his position with that company.

Emil A. Kisro has accepted a position as overseer of finishing at the Davis & Brown Woolen Company, East Killingly, Conn.

Albert Ainley has accepted a position as overseer of weaving at the Madison Woolen Company, Madison, Me. He was formerly employed at the Golden State Woolen Mill, Long Beach, Cal.

Alvah E. Bullock has succeeded Arthur S. Thomas as superintendent of the Stark Mill, Manchester, N. H.

Maurice Murphy has accepted a position as overseer of carding at the Knight Woolen Mill, Provo, Utah. He was formerly employed at the Park Woolen Mill, Rossville, Ga.

E. E. Leith, overseer of weaving at the Thomas Kent Manufacturing Company, Clifton Heights, Pa., has been appointed assistant superintendent of S. Slater & Sons, Webster, Mass.

Charles Hacking, who has been superintendent of the Langford Worsted Mill, Providence, R. I., is now engaged in getting the Fern Rock Woolen Mill, of the Cleveland Worsted Company, Philadelphia, Pa., in shape to start. This mill has 300 broad looms for the manufacture of worsted goods.

C. E. Donovan has accepted a position as overseer of weaving at the Valley Woolen Mill, Cherry Valley, Mass. He was formerly employed at North Montpelier, Vt.

C. E. Orcutt has accepted a position as overseer of spinning on the night shift at the Lebanon Mills, Lebanon, N. H.

Stephen Kelly has been appointed overseer of burling and sewing at the Uswoco Mill, U. S. Worsted Company, Lawrence, Mass., to succeed G. T. Wilkie.

Frank Stiner, overseer of finishing at the Arms Mill, American Woolen Company, Skowhegan, Me., has resigned his position with that company.

Harry Spurr, overseer of burling, specking and perching at the lower Pacific Mill, Lawrence, Mass., has severed his connection with that company.

James J. Burns has resigned as overseer of finishing at the Waterman Worsted Company, Putnam, Conn. He has accepted a similar position at the Livingston Worsted Company, Washington, R. I.

Edward Donahue has been promoted from loom fixer to the position of second hand of weaving at the Intervale Mill, Quinebaug, Conn. Thomas Hanley succeeds Mr. Donahue as loom fixer.

H. W. Atkinson has been appointed general manager of the Demopolis Cotton Mill, Demopolis, Ala. He comes from Jacksonville, Ala.

A. A. MacWhinnie has been appointed superintendent of the Postex Cotton Mills, Post, Texas.

John W. Long has been appointed superintendent of the Dresden Mills, Lumberton, N. C. He was formerly employed as overseer of carding and combing at the Wiscassett Mill, Albemarle, N. C.

Thomas A. Robinson has accepted a position as office manager at the Postex Cotton Mills, Post, Texas. He was formerly employed at the Winder Cotton Mill, Winder, Ga.

W. L. Landau has been promoted from superintendent to manager of the Maginnis Mill, New Orleans, La.

John F. Lockey has been appointed superintendent of the Raeford Mill & Power Company, Raeford, N. C. He was formerly employed in a similar position with the Athens Manufacturing Company, Athens, Ga.

C. J. Shannon has accepted a position as designer at the Fairmont Manufacturing Company, Fairmont, S. C.

T. M. McNeill has been appointed superintendent of the Olympia Mills, Columbia, S. C. He was formerly employed in a similar position at the Ottaray Mill, Union, S. C.

W. H. Sanders has been appointed superintendent of the Magnolia Mill, Charlotte, N. C. He was formerly employed at the Albion Mill, Mt. Holly, N. C.

S. C. Cain has accepted a position as overseer of carding at the Bibb Manufacturing Company's Mill No. 1, Columbus, Ga. He comes from Sylacauga, Ala.

Stephen E. Burgess, for the past five years designer at the Dunn Worsted Mill, Woonsocket, R. I., has resigned to accept the position of president and general manager of the Earnsdale Worsted Company, Clinton, Mass.

Bernard Connell has accepted a position as overseer of spinning for the Bigelow-Hartford Carpet Company, Clinton, Mass. He comes from Proctorsville, Vt.

William H. Sandford has accepted a position as designer for the Dunn Worsted Mills, Woonsocket, R. I. He was formerly superintendent of the River Spinning Company, same city.

George Davidson, one of the best known and highly respected foremen at the Cheney Bros. Silk Mills, South Manchester, Conn., has retired on a pension. Mr. Davidson has been in the employ of the Cheney Bros. Mills for forty-two years and a number of these years in charge of the dress goods weaving department.

John Elwell, for over fifty years connected with the Farwell Bleachery, Lawrence, Mass., and overseer of the bleaching department, has severed his connection with that company. He was presented with a beautiful gold chain and charm, a traveling bag and box of cigars by the help in his employ.

F. S. Brown, superintendent of the Warren Cotton Mills, West Warren, Mass., has resigned his position with that company and accepted a similar one with the Renfrew Manufacturing Company, Adams, Mass. Alexander Tolman, who has held the position of superintendent for the Renfrew Manufacturing Company, will remain with the company in another capacity.

Frank W. Whittle, manager of the Pontiac Bleachery, Pontiac, R. I., for the past sixteen years, has resigned. Mr. Whittle is a member of the Warwick Town Council and his many friends in the Pawtuxet Valley regret to hear of his resignation.

John F. Cannon, for a number of years in charge of the cloth and shipping department of the Arlington Mills, Lawrence, Mass., has severed his connection with the company. He was presented with a purse of money by the help in his department.

C. V. Firth has been appointed superintendent of the Potter Bros. Textile Company, Margaret and Ditman Sts., Philadelphia.

E. C. Haskell has been promoted to the position as manager of the Victor, Greer and Apalache Mills of the Victor Manufacturing Company, Greer, S. C. He was formerly employed for the Monaghan Mills of Greenville, S. C.

J. F. Jenkins has been appointed secretary and treasurer of the Dilling Mills, King's Mountain, N. C., succeeding Captain T. Dilling.

W. P. Leister has accepted a position as superintendent of the Wallace Mills, Jonesville, S. C. He was formerly in charge of the spinning at the Granby, Columbia, S. C.

J. S. Carlton, superintendent of the Ida Yarn Mills, Laurel Hill, N. C., has resigned to accept a similar position with the Hamer Mills, Hamer, S. C.

J. N. Badger has been appointed superintendent of the Monaghan Mills, Greenville, S. C. He was formerly superintendent of the Greer Manufacturing Company, Greer, S. C.

W. B. Holt has accepted a position as overseer of weaving at the Brogon Mills, Anderson, S. C. He was formerly superintendent of the Columbia Cotton Mills, Columbia, Tenn.

E. G. McDade has been appointed overseer of carding for the Victor Mills, Greer, S. C.

R. H. Harrison has accepted a position as overseer of carding and spinning for the Richmond Hosiery Mills, Rossville, Ga. He comes from Knoxville, Tenn.

J. P. Florence has been appointed overseer of carding for the Fairmont Mfg. Company, Fairmont, S. C. He comes from Columbus, Ga.

G. O. Saunders has accepted a position as overseer of carding at the Mississippi Cotton Mills, Moorehead, Miss.

P. Carpenter has accepted a position as overseer of spinning at the Mississippi Cotton Mills, Moorehead, Miss.

I. W. Spake has accepted a position as overseer of weaving at the Hamberg Cotton Mills, Hamberg, S. C. He comes from Gastonia, S. C.

Thomas Smtih has been appointed overseer of carding and spinning at the Ella Mills, Shelby, N. C.

W. B. Warren has accepted a position as overseer of spinning for the Amazon Mills, Thomasville, N. C.

W. D. McDonald has been appointed superintendent of the Hamer Cotton Mills, Hamer, S. C., under G. D. Barlow, who is general superintendent.

G. H. Smith has been appointed overseer of carding for the Paola Mills, Statesville, N. C. He comes from Hickory, N. C.

John A. Thomas has accepted a position as overseer of weaving, dressing and sewing for the Tilton Mills, Tilton, N. H. He was formerly employed at the Clinton Textile Co., Clinton, Mass.

William Grandage has accepted a position as overseer of dyeing for the Yorkshire Mills, Lenni Mills, Pa. He was formerly employed in large mills in that city.

J. A. Davis has accepted a position as overseer of spinning and spooling for the Lynchburg Cotton Mills, Lynchburg, Va.

H. F. Moody has accepted a position as superintendent of the Drayton Mills, Spartanburg, S. C. He was formerly superintendent of the Monaghan Mills, Greenville, S. C.

G. C. Magrath has accepted a position as overseer of spinning at the Mianus Manufacturing Company, Norwalk, Conn.

Eugene O'Connell has been appointed superintendent of the Wyman-Castle Mills Wales, Mass.

DEATHS.

Russel Green Woodward, of the Union Special Machine Company, Chicago, Ill., died at his home in Waukegan, Lake County, Ill., on August 25. He was born on April 15, 1838, in Chateaugay, Franklin County, N. Y. It was in 1859 that he gained his first experience upon sewing machine work with a man known as Bennet, who had a shop on Franklin St. They were manufacturing a double chain stitch machine called the "Pearl" and a single needle chain stitch machine called the "Boudoir.' While thus employed, the concern became interested in a lock stitch machine called the Nutt-Miller. The work done on this machine had the effect of giving Mr. Woodward the reputation of being an expert on sewing machine construction. To record all of Mr. Woodward's inventions in the sewing machine line would be almost endless and he has a long list of patents upon sewing machines to his credit. Mr. Woodward leaves a widow.

John E. Banigan died at his home in Paterson, N. J., after a lingering illness of Bright's Disease in his 64th year. Mr. Banigan was considered one of Paterson's expert manufacturers, having invented appliances for silk machinery. Several of his appliances were used in the warp printing. He also developed new shades in analine color which now hold a high rank in trade. He is survived by a widow, three daughters and three sons.

John Doherty, brother of the late Henry Doherty, founder of the Henry Doherty Silk Manufacturing Company, Paterson, N. J., died at his home in that city after a long illness. Mr. Doherty was connected with the Henry Doherty Silk Manufacturing Company for a number of years, but retired four years ago on account of ill health. He came to the United States from England 57 years ago and lived the most of his time in Paterson. He fought in the Civil War and was dangerously wounded in the Battle of Gettysburg. He was a member of the G. A. R. and Red Men.

Edward Bromley, prominent in the textile manufacture of rugs and lace goods and operating mills in Philadelphia, Penn., died at his country home at Oak Lane, New York, at the age of 54 years. He was unmarried, and a member of the Masonic fraternity Union League, a manufacturers' and Columbia Club.

Gilbert G. Yingst, 29 years of age, and one of the most successful overseers in hosiery mills, died at Winsted, Conn., September 4 of typhoid fever. He was of German descent, married and leaves a small family.

Arthur H. Buttom, 56 years of age, and a foreman in the Nonotuck Silk Mills, Florence, Mass., died suddenly Saturday, June 4th, of heart failure. Many years ago he was employed for L. J. Warner of Florence, Mass., and later conducted a silk manufacturing business in Windsor Locks, Conn. He is survived by a widow, one son and two daughters.

William A. Dickel, widely known among the textile trades of Philadelphia, Pa., died suddenly on August 19, in Ocean City, N. J., of acute indigestion, where he was spending the summer months with his family, the body being removed to his home in Melrose Park, Pa., for burial. Mr. Dickel will be remembered by the trade as being connected with one of the oldest textile manufacturing concerns in this vicinity, a business started very many years ago by his father, the late Henry Dickel, for the manufacture of ingrain carpets. A few years ago he retired from the carpet trade, disposed of the equipment of the plant and started up a new business in the Arizona St. mill under the name of Henry Dickel & Son, in which he manufactured mercerized, silk and artificial silk laces and braids. Later on he incorporated and started the Industrial Tape Mills Company, of which he was president and treasurer up to the time of his death, and which has been successfully engaged in making narrow fabrics at Jasper & Huntingdon Sts. Mr. Dickel was also identified with the Industrial Trust, Title & Savings Com-

pany of Philadelphia, being a member of its Board of Directors for many years.

Dexter J. Cutter, for many years paymaster at the Boston Manufacturing Company, Waltham, Mass., died at the home of his daughter in Waltham of pneumonia. He was 88 years of age and born in Sudbury, Mass. He leaves one daughter and two sons.

J. Howard Tidd, treasurer and agent of the Oakland Mills, Taunton, Mass., for the past twelve years, died at his home in that city at the age of 48 years. He is survived by his mother and a brother, Winthrop L. Tidd, who is president of the company. Mr. Tidd was also associated with jewelry business.

James W. Streeton, for many years president of the firm of J. W. Streeton & Company, ribbon manufacturers, Brooklyn, N. Y., died August 27 at his home in that city at the age of 54 years. Mr. Streeton was born and educated in Brooklyn and had been connected with the silk business there since the early '80s. For a long time he was an active member of the Brooklyn Union League Club. He is survived by his wife, a daughter and one son.

Wilton Farnsworth, a woolen manufacturer, died September 1 at his home in New York City of apoplexy at the age of 59 years. He had been ill for the last four years. Mr. Farnsworth was born in Millbury, Mass., and retired from business about ten years ago. His wife and one son survive him.

William B. Andrews died suddenly on September 10, after a short illness. Mr. Andrews was connected with the firm of Thomas H. Ball, Philadelphia, Pa., manufacturers of worsted yarns, in the capacity of office manager for the past twenty-five years. He was well known throughout the textile trade.

Edward S. Stratton, overseer of the carding department in the No. 1 mill of the Amoskeag Manufacturing Company, Manchester, N. H., died at his home in that city September the 12th. He was 55 years of age and is survived by a widow and one daughter. He was a member of the Derryfield and Textile Club.

Samuel Sheldon, president of the Post & Sheldon Corporation, manufacturers of broad silks at Paterson, N. J., died at his home in Campgaw, N. J., September the 9th from an attack of indigestion. Mr. Sheldon spent the entire day at his desk in the New York office and returned to his home in the evening. Soon after arriving home he complained of a severe pain and medical aid was sought but before the physician arrived he had passed away. He was widely known and highly esteemed in Paterson and his sudden death comes as a great shock to his business associates. He was born in Macclesfield, England, 54 years ago. He is survived by a widow, two daughters and two sons.

Alexander W. Mack, treasurer of the Raritan Woolen Mills and the Somerset Manufacturing Company, Raritan, N. J., died suddenly in the office of the Raritan Woolen Mills. Death was attributed to acute indigestion aggravated by excitement attending a strike at the mill. Mr. Mack was 40 years of age and is survived by a widow, one son and two daughters. He succeeded his father, Adolph Mack, as treasurer of these mills. He was a candidate for mayor of Somerville, N. J., on the Republican ticket and had filed his petition under the primary election laws within a few days.

C. B. Atkins died at his home in West Springfield, Mass., at the age of 49 years. Mr. Atkins was one of the best known and highly respected knitting mill overseers in the country. He had worked in some of the leading mills in the New England and Middle States, and was a contributor of articles on the manufacturing of sweaters and underwear for the trade papers. He is survived by a widow.

William E. Knipscher, senior member of the firm of Knipscher & Maas, silk dyers of Paterson, N. J., and for more than forty years connected with the silk industry of Paterson, died at his home in that city September 21st following an illness of a few hours. He was 63 years of age, born in Germany and came to this country when a young man. He is survived by a widow, one son and two daughters.

Andrew J. Root, president and treasurer of the Root Manufacturing Company, Cohoes, N. Y., died suddenly at his home in that city. Mr. Root was born in Port Schuyler in 1834 and when a young man entered the firm of Root & Whitelock, of Albany, N. Y., his father being senior member of the company. Since the death of his father he has had whole charge of the manufacturing.

FACTS AND GOSSIP.

California, Berkeley. Richard Boyes, who is said to be an experienced silk manufacturer, has discussed with W. O. Mills, and other representatives of the Chamber of Commerce, the possibility of starting a silk weaving plant in Berkeley.

Canada, Ontario, Cobourg. The Cobourg Matting & Carpet Company, Ltd., has been reincorporated under a broader charter, and the capital stock increased from $50,000 to $300,000. Additions are contemplated but for the present are in abeyance. Coco natts and matting, jute carpets, jute and flax press cloths, are manufactured. John Dick is president; W. M. Hilliard, treasurer; W. Wildbur, superintendent, and H. Fullerton, buyer.

*Connecticut, Mystic. W. D. Sowter, head of the Mystic Lace Mill project, is soliciting subscriptions to stock of the concern. The Royal Linen Mills, which it is proposed to occupy, are to be equipped with 18 lace machines from a factory at Nottingham, England, according to the plans.

District of Columbia, Washington. Dr. Oscar Seiglie, Second Secretary of the Cuban Legation, is seeking information regarding the cost of establishing small and medium sized factories for manufacturing woolen or cotton fabrics, or both.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

First Principles of Production: by J. Taylor Peddie; 231 pages, 4 3/4 by 7 1/2; Longmans, Green & Co., New York. Price $2.00.

This book has been written in order to aid in the inevitable revision of the economic policy of Great Britain after the war. It is intended for the instruction of the workman, manufacturer and the student of political economy. Following an introduction the contents are divided into the following sections: First Principles of Production; The State and Opportunity in Industry; Tariffs, Free Trade and Industry; The Influence of Science on Political Economy; Finance and Industry; Science and Industry; The Cooperation of Science and Industry; The Influence of Brain Power on History and Industry; British Imperialism; Steel Industry; The Chemical Industries of Germany.

BUSINESS LITERATURE

The Powell Appliances; The Wm. Powell Co., Cincinnati, O.

A 56-page booklet describing and illustrating the Powell appliances for automobiles, trucks, motor boats, gas, gasoline and oil engines. The company also manufacture a complete line of brass and iron globe, angle, cross, gate and check valves, lubricators, single and double connections, oil and grease cups of every kind and description. The Powell products are all sold under a guarantee as to their mechanical perfection and superior workmanship. The booklet is prepared with the usual painstaking attention to details, is remarkably complete and well arranged, and of a convenient size. A feature for which the Wm. Powell Co. has long been noted is the "White Star" valves. They are prepared at all times to furnish non-corrosive valves, cocks and fittings at special prices.

Industrial Notes

MOVING INTO NEW QUARTERS

The R. D. Whitmore Co., dealer of imported and domestic cotton and worsted yarns, have moved into new quarters at 121-123 East 24th St., Philadelphia, where they have taken the entire ninth floor, greatly enlarging their office facilities. The R. D. Whitmore Co. represent three German and two English mills as well as domestic spinners and have their own facilities for converting cotton yarns.

EDISON DAY PRIZE CONTEST

In conjunction with the celebration of Edison Day, October 21 this year, the thirty-sixth anniversary of the invention of the electric incandescent lamp, Oct. 21, 1879, by Thomas A. Edison, a nation-wide prize contest for boys ahd girls has been inaugurated by the Edison Lamp Works of the General Electric Company. Thirty-three grand prizes and 2,000 smaller prizes amounting to $2,500 are offered, and the conditions are such that either boys or girls may compete with equal chances. The contest will be carried on in cooperation with lighting companies and dealers all over the United States, and is for the purpose of extending the growing popular appreciation of electric lighting and particularly the replacement of old style carbon lamps with modern types of Edison Mazda lamps. The contest opens 12.01 a. m., Tuesday, Sept. 21, and closes 12.00 mdinight, Thursday, Oct. 21, 1915.

The first prize for boys is a $275 Indian big twin motorcycle, and for girls is a $200 new type Edison disk phonograph with $75 cash for records; the second prize for boys is an $80 Evinrudo detachable rowboat or canoe motor, and for girls is an $80 order on any jeweler for a choice of jewelry; the third prize for boys is a $47 Old Town "Octa" 17-ft. canoe, and for girls is a $47.00 Parisian ivory toilet set; and so on down through a long list of jewelry, musical instruments, cameras, sporting goods, etc., for the thirty-three prizes. Each of the 2,000 boy or girl contestants that stand next highest will receive an Eveready fountain pen flashlight. Each prize is not awarded to one boy and one girl contestant, but the first prize to one boy or one girl, and so on. The boy or girl winner also has the privilege in each case of accepting the cash equivalent instead of the prize.

The contestant has to secure from the local lighting company or agent for Edison Mazda lamps an official contestant card and the details will be explained by him. Order cards have to be distributed by the contestant during the time authorized to users of electric light in homes, stores, factories, etc., who can be induced to replace old style carbon incandescent lamps with modern Edison Mazda lamps, or who contemplate purchasing a new supply of lamps.

During the months of September and October the Edison Lamp Works of the General Electric Company will also conduct one of the most comprehensive campaigns of propaganda ever undertaken on Edison Mazda lamps, and for the purpose of popularizing electric lighting. Advertisements will appear in over 18,000,000 copies of 100 different magazines and newspapers circulating in practically every section of the United States. Numerous Sunday magazine supplements, the great weekly and monthly popular magazines, boys' magazines, and many trade and technical journals will carry their respective Edison Day announcements to the general public, to the boys and girls who should enter the contest and to their parents, to manufacturers, to business men, to stores, to central stations, to dealers, etc.

THE GOULDS MANUFACTURING COMPANY OPENS PHILADELPHIA OFFICE

On October 1st, The Goulds Manufacturing Company of Seneca Falls, N. Y., manufacturer of pumps for every service, opened a Philadelphia office at 111 N. Third St. They have purchased the business of H. E. Trotman, who up to the present time has been distributor for Goulds Pumps in this territory, and have leased from him the store-room and warehouse of the above address.

E. S. Jenison, formerly with The Canadian Fairbanks-Morse Company, Ltd., Montreal, has been appointed manager and F. G. Kramer, formerly in the employ of H. E. Trotman, will be assistant manager. J. B. Trotman will continue with The Goulds Manufacturing Company.

The Goulds Manufacturing Company will confine its business to pumps, pump accessories, waterworks supplies, gasoline engines, motors, etc., for use in operating pumps. Ample stocks will be carried so that every dealer in this district is insured prompt shipment.

This is the third office opened within the past few months by The Goulds Manufacturing Company, an office having been opened in Pittsburg in August and one in Atlanta last December.

NEW BEDFORD TEXTILE SCHOOL

This school opened for its seventeenth year on September 13 in the day classes and September 20 in the evening. Entrance examinations for day students were held Friday, September 10, and enrollment for the evening classes took place Thursday and Friday evening September 16 and 17. The number of young men who have indicated their intention of entering the school this year gives promise of a large Freshman class.

The courses to be given at the school are to be extended in two important respects, in dyeing and finishing cotton goods and in cost accounting. The additional instruction to be given in dyeing and finishing is made possible by the new $10,000 dyeing and finishing plant installed at the school this summer. As to cost accounting, some instruction was given to day students in this subject last year, but the course will be extended and will be given in the evening classes if there is any demand for it.

BOSTON BELTING CO.

W. E. Hardy, for the past eleven years connected with the Diamond Rubber Company, and the B. F. Goodrich Company, and lately in charge of the sales of their Mechanical Rubber Goods Division, has lately been appointed sales manager of the Boston Belting Company, Boston, Mass., manufacturers of mechanical rubber goods.

Maine, Sangerville. No changes will be made in the Sangerville Woolen Mills by the Oldtown (Me.) Woolen Company, which has leased the plant until January 1, 1916, and is starting it up.

Maryland, Baltimore. According to local reports a building at 428 East Saratoga St. has been leased by the Monumental Mfg. Company, makers of cotton duck and other fabrics, and it is expected to begin operations there about October 15, employing about 150 persons, mostly women. The company's office will be in the Lincoln Bldg., Boston. J. E. Lucker is president; J. G. Fisher, secretary and treasurer; E. D. Heninson, sales manager, and R. Legare Webb, attorney. At the Lincoln Bldg., Boston, nothing was known of the Monumentnal Mfg. Company.

*Massachusetts, Amesbury. F. L. Hewitt of the Merrimack Valley Power & Bldg. Company, 68 Devonshire St., Boston, which controls the old cotton mill property here, states that there is some foundation for the report that a textile manufacturing concern may install a 20,000-spindle plant in Nos. 1 and 2 Mills. Mr. Hewitt states that he is in touch with a number of concerns that are possible tenants but that nothing has been closed. This is a proposition to rent manufacturing space with power.

Massachusetts, Fall River. A small fire in the card room on the third floor of Mill No. 2 of the Union Cotton Mfg. Company was extinguished with practically no loss.

Massachusetts, Lowell. The Lowell Bleachery is very busy and night work is being done in some departments. Conditions are also reported to be excellent at the St. Louis branch, started two or three years ago.

Massachusetts, Mansfield. A large reinforced concrete factory building formerly owned by the Mansfield Laboratories, Inc., has been sold to the Mansfield Bleachery Company, at auction for $17,250. The Mansfield Bleachery will use the buildings for storage purposes in connection with their cotton piece goods bleaching, finishing and mercerizing business here.

Massachusetts, Monson. Ricketts & Shaw, manufacturers of kerseys and cloakings, have started on a night schedule in the carding, spinning and finishingn departments.

Massachusetts, North Abington. The business of A. C. Woodward, a manufacturer of narrow fabrics of all kinds on 104 looms, has been incorporated with capital stock of $50,000 under the style of the Victory Webbing Co., Inc. Mr. Woodward is advancing in years and is not in the best of health so to protect his interests in the business decided to incorporate. He will act as treasurer and buyer for the new concern. More help including weavers, winders and warpers is required.

Massachusetts, Palmer. Operations have been resumed by the Thorndike Company of Thorndike, the Palmer Mill of the Otis Company of Three Rivers, and the mills at Bondsville, after a shut down of ten days.

Massachusetts, Pittsfield. An order from the Swiss Government for 75,000 yards of uniform cloth has been received by the Pontoosuc Woolen Mfg. Company.

Massachusetts, Worcester. The Worcester Woolen Mill Company has granted an increase of ten per cent. in wages to about 75 employes. The request for the increase was made by the workers and it was granted. There was no strike.

AWARD TO THE BOND FOUNDRY & MACHINE CO.

The Jury of Awards at the Panama-Pacific International Exposition have awarded the Bond Foundry & Machine Company, Manheim, Lancaster Co., Pa., the highest competitive award for their Lytestrong pressed steel shaft hanger.

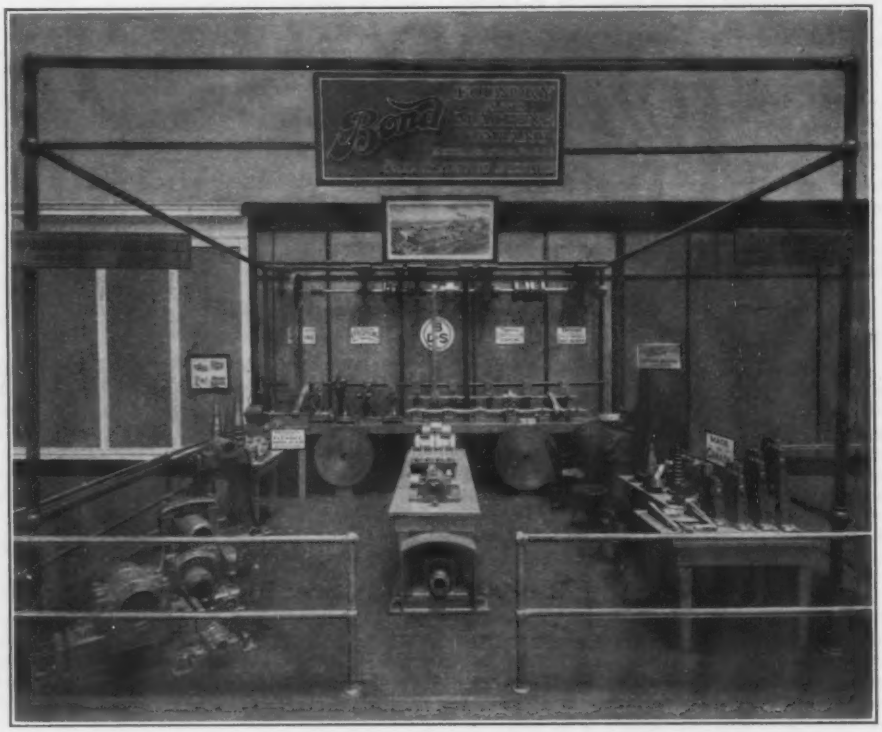
The combined exhibits of the Bond Foundry & Machine Company of Manheim, Pa., the Charles Bond Company of Philadelphia and the Canadian Bond Hanger and Coupling Company, Ltd., of Alexandria, Ontario, Canada, Avenue I and Fourth St., Machinery Palace, present in a very practical and comprehensive manner the complete line of Bond "Double Sure" power transmitting appliances and "Sterling" oak tanned leather belting.

The greater part of the hangers, couplings, clutches and belting is in actual use. The overhead or main shaft is graduated in size from fifteenth-sixteenth to four and fifteenth-sixteenth inch, the Bond "Spiro" compression, plate and clamp couplings and the Bond friction clutch being used to connect the different sections. This line of shafting is hung in Bond hangers, both of cast iron and pressed steel types.

There is also on display much heavy material. An eight and fifteen-sixteenth inch rigid ring oiling pillow block is fitted with adjustable base plate, a large seven and fifteen-sixteenth inch shaft hanger, a pedestal pillow block, floor stand, wall frames, etc.

The line of Bond Patent Scientific "Lytestrong" steel shaft hangers ranging in drops from eight to twenty inches is noteworthy from the standpoint of its completeness, lightness and great strength, and the variety of places where the hanger is especially adapted. The parts of the complete "Lytestrong" hangers are shown separately and also the hanger partly constructed. On tables are the various types of Solid and Split Collars conically arranged.

The Chares Bond Company's "Sterling" oak tanned leather belting is used on all of the drives, while rolls of single and double "Sterling" and "Whirlpool" water proof belting are on display. The Grundy patent flexible insulated coupling, also manufactured by the Charles Bond Company, used for connecting motors direct to machinery, and also for the connection of shafts that are out of alignment, is used not only in the bond exhibit but on numerous other machines throughout the machinery palace.



THE PANAMA-PACIFIC EXHIBIT OF THE BOND FOUNDRY AND MACHINE CO.

S. K. F. BALL BEARING CO. TO BUILD AMERICAN PLANT

On the 4th of September there was incorporated in Hartford the S. K. F. Ball Bearing Company of Hartford, Conn., with a capitalization of $2,000,000, having for its object the manufacture and sale of the ball bearings known by this name.

The S. K. F. ball bearing was introduced into the U. S. A. in the year 1910, three years after the patents for the invention exploited by the parent concern, "The Aktiebolaget Svenska Kullagerfabriken of Gothenburg, Sweden," had been granted. At that time the present American S. K. F. Ball Bearing Co. was incorporated with a capital of $50,000 as a selling organization for the bearings manufactured by the Swedish concern. Within a very short time it became evident that this particular type of bearing had a large market in this country and the business of the company quickly extended until at the present time it is one of the leading ball bearing importers in the United States with a sales organization covering the whole country. It is now the intention of the company to build a factory, for which a site has been selected at Hartford, Conn., which place the company has found offers the class of skilled labor necessary for the production of a high quality mechanical product of this kind. With this factory, in addition to the Swedish source of supply, the S. K. F. Ball Bearing Co. will be in a position to take care of all demands made upon it.

Until the new factory is in a position to supply American made bearings, the S. K. F. Company, which has since the war been one of the few importers who have not suffered any interruptions in their source of supply, will continue as hitherto to import Swedish made bearings and will continue to do so as long as may seem desirable. This places the company in the fortunate position of having two sources of supply, and of not being pushed to develop its American factory quicker than it is able to organize a plant, which can be depended upon to keep up the present high standard of Swedish S. K. F. products with regard to quality. It is intended to start with a plant employing about 300 men, which will, to begin with, be able to produce only a portion of the bearings annually sold by the company in this country. Some idea of the size that the American factory may be expected to attain in the course of a few years can be gained from a comparison of the growth of the Swedish concern, which, starting in 1907 with a small factory (see Fig. 1) employing about 100 men, has in the course of eight years grown so that it now has a floor space covering six acres (see Fig. 2) and a force of over 3,000 at the home factory alone, not counting its branches in various European countries.

THE NEW BUILDING OF THE S.K.F. BALL BEARING CO.

THE OLD BUILDING OF THE S.K F. BALL BEARING CO.

COTTON FREIGHT RATES TO JAPAN

From Japan Times of Aug. 24, by Consul General George H. Scidmore, Yokohama

It is learned that the Government has granted, under date of August 21, leave to raise freight rates on American cotton from 40 cents per picul (30 cents per 100 pounds) to 50 cents per picul (37 1/2 cents per 100 pounds) to the three mail steamship companies running trans-Pacific services. Perhaps the reported retirement of the

Pacific Mail liners from the line has induced the authorities to hurry up the decision on this question of such importance to spinning circles.

ASHDALE BLEACHERY IN NEW QUARTERS

The Ashdale Bleachery, which commenced its operations in a small way one year ago in Manayunk, have been compelled to remove their plant to another and larger location on Frankford Ave., above Lehigh Ave., right in the heart of the Kensington Mill district. The building secured by them, which is three stories high, has been remodeled and equipped with the latest improved machinery for bleaching cotton, woolen, silk and artificial silk hosiery, on which the owners of the plant are specializing. The Ashdale Bleachery has sufficient business on hand at the present time to keep them running to their fullest capacity. They also propose, at a later date, to install a department with special machinery for the bleaching and finishing of cotton fabrics, towels, etc., and a plant for the dyeing of logwood colors on hosiery. The entire plant is under the management and superintendency of Thomas Ashdale, who is well known to the textile trade as an expert in dyeing and bleaching, having had many years of experience in turning out high grade goods.

RHENISH-WESTPHALIAN TEXTILE MANUFACTURERS

Consul Henry C. A. Damm, Aix la Chapelle, Germany, Aug. 20

The principal purpose of the Cooperative Association of Textile Manufacturers is that of mutual liability insurance. Its officials inspect the appliances installed in the mills for prevention of accidents to employes, and compensations for accidents incurred for which the employers are liable are paid by the association.

The assets of the association at the end of the year 1914 were $735,062, of which $693,714 constitute the reserve fund, and the remainder consists of real estate, bank balance, and working capital. The receipts for the year 1913 totaled $224,045, derived from the membership dues, interest on reserve fund, rent from real estate, fines and penalties. The expenditures for the year 1913 reached $223,507, including $180,803 paid as compensations in cases of accidents. Other expenses were for conducting investigations in cases of accidents, inspection of safety appliances in the mills, salaries of officials, office expenses, taxes.

The association, with its headquarters at Muenchen-Gladbach, had, during 1914, a membership of 2,850 concerns, as against 2,954 in 1913, which engaged 144,659 employes, as against 157,888 in 1913. The Duesseldorf section had a membership of 121 concerns with 10,653 employes; Muenchen-Gladbach, 342 with 32,829; Elberfeld, 227 with 10,024; Barmen, 1,499 with 25,092; Lennep, 109 with 11,910; Aix la Chapelle, 293 with 22,797; Muenster, 259 concerns with 30,454 employes. During the year 1914 there were paid in wages $31,196,162, as against $36,207,476 the previous year. The average wage per employe, including females and minors, was $217.30, which is slightly less than the average for the last five years. As compensation for accidents to employes, $180,366 was paid in 1914; 2,221 accidents were reported, 13 of which resulted in death.

THE PEARSITE COMPANY

A plant is being established at Caney, Ky., by the Pearsite Company to manufacture dyestuffs and, according to men interested, the first unit will have a production of between 800 and 1,000 pounds daily before the end of October. It is planned to increase this output to 10,000 pounds daily. A sky blue, a direct black, a benzol red, a wool black and a direct green will be the first colors produced and John Lindemann, of F. Bredt & Company, the New York selling agents, is authority for the statement that they will measure up to full requirements as regards fastness and other qualities and are adaptable for cotton, silk and wool. Experimental work has been carried on in mills of the American Woolen Company and the Cleveland (Ohio) Worsted Mills Company. The Pearsite Company has been organized under the laws of Delaware with capital stock of $2,000,000. Col. H. P. Bope, vice-president of the Carnegie Steel Company, is president; N. W. Niles, Boston, is treasurer; and Wheeler B. Horner, Oliver Bldg., Pittsburg, is secretary. The concern is named for Arthur L. Pearse, a mining engineer.

NETHERLANDS TRADE IN COTTON

Statistics presented in the August 2 issue of the Manchester (England) Guardian, and said to be taken from the Dutch Board of Trade returns, show the amounts of cotton imported into and exported from the Netherlands in the first half of the current year, with comparative data for the corresponding months of 1914 and 1913. These figures are:

Imported from (first six months)	1913 Tons	1914 Tons	1915 Tons
United States	8,071	7,815	87,119
British India	....	156	....
France	462	207	....
Germany	22,071	19,960	839
United Kingdom	5,210	3,464	11,981
Other countries	23,995	35,398	3,849
Total	59,809	67,000	103,788

Exported to (first six months)	1913 Tons	1914 Tons	1915 Tons
Belgium	13,697	8,652	59
France	10	22	....
Germany	25,029	33,913	93,009
Sweden	678	294	109
United Kingdom	1,857	1,839	194
Other countries	2,390	3,850	1,452
Total	43,661	48,570	94,823

In presenting these statistics the Guardian calls particular attention to the fact that cotton has never been declared contraband, and that the restrictions on shipments of the fiber to the Netherlands were not operative during much of the half year under discussion.

THE "PARAMOUNT" HOSIERY FORM

The Paramount Hosiery Form Drying Co., of Chicago, successors to The Paramount Metal Form Drying Company, of Beaver Dam, Wis., have placed upon the market, on an extensive scale, their patented internally-heated hosiery drying and shaping form under the registered trademark "Paramount." This form is a distinct departure in the drying and finishing of hosiery. Leading hosiery mills are having them installed in their drying rooms.

The "Paramount" form has found a ready demand because of its many advantages, including high efficiency and great simplicity. It has already gone into extensive use and the company has established a large business in leasing the apparatus to the trade, and has engaged in the policy of vigorously protecting their rights under the patents. They have instituted infringement proceedings against one manufacturing concern in St. Louis for the unlicensed making of a hosiery iron and form; and against a hosiery knitting concern in the same city for the unlicensed use of the form.

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A SUCCESSFUL MILL SPECIALTY DEPARTMENT

In connection with his business of importing and manufacturing textile machinery, which was established more than 25 years ago, William Firth, 200 Devonshire St., Boston, Mass., has within the past few years been developing a department for the manufacture and sale of mill specialties. Several of these specialties have been described in different issues of the Textile World Record and some have been exhibited at the Textile Machinery Shows in Boston.

One of the first of these specialties taken up by the department was the Dustless Card Stripping Apparatus, which is now well-known and has been adopted by a great many mills North and South, and there are now over 35,000 cards being stripped by it regularly. Another specialty is the Broomless Floor Sweepers, which are working successfully, saving time and money for the mills.

A more recent specialty is the "Slugless" Comber Cleaner—called "Slugless" because it cleans the combers by suction, eliminating the usual danger of slugs getting into the work. It cleans the combers without stopping them, which means increased production.

And still another successful specialty is the "Mendall"—a steel cutting, brazing, soldering and carbon removing outfit, especially designed and adapted to textile machinery repairs. Any broken or worn part in the mill can be mended and put back in service in a few hours.

In his general business Mr. Firth has been making considerable progress of late in the sale of self-acting mules and cotton waste machinery.

Since the disturbance in Europe there seems to be an increasing interest in machinery for mule spun yarns, and the American cotton manufacturers are beginning to see the advantages of regaining their waste, most of which has hitherto been sold at low prices for export to Germany and other countries.

Several orders have recently been received for self-acting mules, and a substantial contract closed for a waste mill equipment, and several others are pending.

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AWARDS TO THE LUNKENHEIMER COMPANY

A short time ago, articles descriptive of The Lunkenheimer Company's exhibits at San Francisco and San Diego appeared in these columns, and mention was made of the impression of quality conveyed upon examination of the articles exhibited. That the Juries of Awards were equally impressed with the quality of the engineering appliances displayed, is evidenced by the medal of honor which was granted The Lunkenheimer Company at the Panama-Pacific International Exposition, and the grand prize at the Panama-California Exposition.

The exceptionally large and complete line of engineering appliances exhibited covers in great variety, bronze, iron, "puddled" semi-steel and cast steel globe, angle, cross, check, gate, balanced throttle and non-return safety boiler stop valves; also bronze and iron pop safety, relief and blow-off valves; water columns and gauges; whistles, ground key work, injectors and ejectors; bronze fittings and unions; cylinder lubricators, oiling devices, oil and grease cups; automobile and motor boat specialties, etc.

The Lunkenheimer Company feel that the truth of their claim of being manufactured only of goods of the highest quality has been fully corroborated by the decision of the juries of awards in granting the prizes.

The company has its executive offices and factories in Cincinnati, and maintains numerous branch offices and selling agencies throughout the United States and in foreign countries.

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FORECAST OF INDIA'S JUTE CROP

Consul General James A. Smith, Calcutta, July 22

The preliminary forecast of the jute crop for 1915 has just been made public by the Department of Agriculture of Bengal and covers the estimated area under jute in the three Provinces in India where this fiber is grown, as compared with the acreage figures returned in the final forecast of 1914. The figures are of interest as showing a remarkable decrease in acreage, due, without doubt, to the great fall in prices in the raw material last year after the outbreak of the war, when shipments to both Germany and Austria were entirely suspended. Among jute merchants in Calcutta the official figures given have been received with some skepticism, and are believed to considerably underestimate the acreage actually under jute at the present time.

The acreage figures for the three Provinces are as follows:

Bengal:	1914	1915	Decrease
Western	467,199	297,369	169,830
Northern	855,511	591,385	264,126
Eastern	1,549,894	1,150,402	399,492
Cooch Behar	44,413	27,556	16,857

Behar and Orissa ...	330,120	215,339	114,781
Assam	102,300	83,100	19,200
Total	3,349,437	2,365,151	984,286

The following, therefore, are the decreases in acreage: Western Bengal, 36 per cent.; northern Bengal, 31 per cent.; eastern Bengal, 22 per cent.; Cooch Behar, 38 per cent.; Behar and Orissa, 35 per cent.; Assam, 19 per cent. The total decrease in acreage compared with last year's area is 29 per cent.

Taking into consideration the figures for last year's forecast and the amount of jute which has since come into Calcutta or been exported from India, a considerable quantity of jute has been left over from last year's crop.

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FOREIGN TRADE OPPORTUNITIES

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has published the following items regarding opportunities for foreign business in textile materals. The addresses may be obtained from the Bureau and its branch oifices. Request for each opportunity should be on a separate sheet and the file number given.

Fancy goods, etc., No. 17743: A manufacturer's agent and importer in Canada desires to represent American manufacturers and jobbers oi dry goods, especially cashmere ribbed hosiery; lisle, taffeta, and silk gloves; neckwear for women; all kinds of carpets.

Hosiery, No. 17716: A firm in Italy desires to secure a line of light-weight silk hosiery.

Hosiery, boot laces, and umbrella handles, No. 17709: The Bureau of Foreign and Domestic Commerce is in receipt of a letter stating that a representative of an English firm desires to be placed in communication with American manufacturers and exporters of hosiery for women, boot laces, umbrella handles and ribs, buttons, etc.

Textiles, etc., No. 17609: A business man in Chile desires to represent American manufacturers and exporters of gray drill and gray sheetings, hosiery, cotton goods and flannels.

Netting, No. 17967: A firm in Brazil desires to import netting similar to the sample which may be examined at the bureau or its branch offices. The firm states that it wishes to place an order for 1,000 yards of this material.

Wearing apparel, No. 17962: An American consular officer in England reports that a firm in his district desires to represent American manufacturers and exporters of gray shirtings, sheetings, etc., suitable for the Red Sea ports, Abyssinia, and East African coast.

Hosiery and gloves, 17771: A firm in New Zealand desires to receive price lists, catalogues, samples, and full information relative to hosiery, especially cotton and silk, and gloves of all kinds.

Textiles, No. 17984: An American consular officer in the Netherlands reports that a business man in that country wishes to form connections with American manufacturers of cotton embroideries, woolen serges and cheviots, and printed shirtings and sateens.

Hosiery and gloves, No. 18012: The Bureau of Foreign and Domestic Comerce is in receipt of a letter from a business man in England who desires to communicate with American manufacturers and exporters of silk hose and gloves for women.

Hosiery, No. 18009: A business man in Italy desires to receive orders from American manufacturers of hosiery for women. Correspondence may be in English.

Bobbins, No. 18010: An American consular officer in India has transmitted a detailed report relative to a market in his district for the sale of bobbins to be used in jute mills.

Textiles, etc., No. 18001: A company in Brazil desires to get into communication with American manufacturers of textiles and wearing apparel.

Woolen thread, No. 17539: An American consular officer in Brazil reports that a company in his district desires to import carded and combed white and colored woolen thread on spools, bobbins, and reels. A mixture of 50 per cent cotton and 50 per cent wool is desired, light and dark, of various colors. The sizes desired are 2/72, 2/56, 2/48, and 2/40.

Cotton twist, No. 18297: A Norwegian retail dealer in ships' supplies desires to arrange definite terms at once with an American firm selling cotton twist. This waste product of cotton is used for cleaning purposes on ships. The twist generally comes in bales weighing about 250 kilos (551 pounds) each, and is sewn up in jute bags bound together with iron hoops.

Cotton ginghams and underwear, No. 18301: A commission agent in Norway informs an American consul that he desires samples of American printed cotton ginghams and cheap cotton underwear.

Cotton and cotton yarn, No. 18302: An American consul in a neutral country reports that a firm in his district would be glad to correspond with American dealers in raw cotton or cotton yarn.

Ready-made clothing, etc., No. 18326: An American consular officer in Central America reports that a firm in his district desires to receive catalogues and prices, together with full information as to credit, etc., of men's furnishings and ready-made clothing.

Draperies, ribbons, hosiery, linings, etc., No. 18220: A firm in the United States writes the Bureau that one of its correspondents in Denmark desires to represent American manufacturers and exporters of draperies, ribbons, elastics, hosiery, buttons and linings.

Cotton goods, paper, drugs, etc., No. 18130: A business man in Peru desires to receive the names and addresses of American manufacturers and exporters of cotton goods, dress goods, paper, and supplies for drug stores.

The man is especially interested in hosiery and underwear.

Chiffons, laces, etc., No. 18131: A firm in Canada desires to receive the names and addresses of American manufacturers and exporters of veils, chiffons, laces, etc.

Ribbons, No. 18245: An American consular officer in Honduras writes that a firm in his district desires to receive samples and prices of silk, satin and taffeta ribbons ranging in width from 1/8 inch to 3 inches. English may be used in correspondence.

Hosiery, silk goods, etc., No. 18253: The commercial attache of the Department of Commerce in Australia transmits the name and address of a manufacturers' agent who desires to represent American manufacturers and exporters of hosiery and silk piece goods.

Underwear, hosiery and gloves, No. 18181: A manufacturers' agent in Ireland desires to receive agency concessions for the sale of all kinds of underwear, hosiery, and gloves for women.

Textile and elastic goods, No. 18205: An American consular officer in Scotland reports that a firm in his district desires to correspond with American manufacturers and exporters of textile and elastic goods similar to the samples which may be examined at the Bureau or its branch offices.

Cotton piece goods, No. 17951: An American consular officer in Burma has transmitted a report relative to an opportunity for the sale of cotton piece goods in that country.

Haberdashery, No. 18142: A business man in the Netherlands desires to establish commercial relations with American manufacturers and exporters of collars, ties, gloves, trimmings, hosiery, silks, handkerchiefs, etc.

Dry goods, etc., No. 18191: An American consular officer in Argentina reports the name and address of a business man in his district who desires to represent, on a commission basis, American manufacturers and exporters of dry goods, knit goods, cotton and woolen yarn, and allied lines.

Threads and yarns, No. 18138: A silk manufacturer in France desires to be placed in direct communication with American manufacturers and exporters of cotton threads and yarns. He desires to purchase for his own use as well as for sale to other manufacturers.

TREASURY DECISIONS

T. D. 35687. Aug. 31, 1915. Nets and netting. Upholstery goods. Nets and netting used in making curtains to be assessed with duty at 60 per cent. ad valorem under paragraph 358.

T. D. 35703. Sept. 8, 1915. Flannels. Woolen flannel material used for certain outer garments, and also for pajamas, etc., held to be within the commercial meaning of the term "flannels" used by Congress in paragraph 289, act of 1913. Said merchandise, therefore, should not be classified under the provision for manufactures of wool in paragraph 288, or under the provision for wool dress goods in paragraph 290. In the matter of protests 759566, etc., of E. McConnell & Co., et al. against the assessment of duty by the collector of customs at the port of New York.

T. D. 35625. Drawback on hosiery. T. D. 35429 of May 24, 1915, extended to cover hosiery manufactured by the Allen Hosiery Co., of Philadelphia, Pa., with the use of imported artificial silk.

T. D. 35648. August 10, 1915. Drawback on braids, trimmings, bands and ribbons. Drawback may be allowed on braids, trimmings, bands and ribbons manufactured by S. Rosenau & Co., of Philadelphia, Pa., with the use of imported artificial silk.

BOARD OF GENERAL APPRAISERS

T. D. 35654—G. A. 7768. August 14, 1915. Handkerchiefs, embroidered or scalloped. Embroidered or scalloped flax or cotton handkerchiefs, whether finished or unfinished, hemmed or unhemmed, are dutiable under the provisions in paragraph 358, act of 1913, for "handkerchiefs . . . . . embroidered in any manner . . . . . or tamboured, appliqued, or scalloped" and not under the general provisions for handkerchiefs composed of flax or handkerchiefs composed of cotton in paragraphs 282 and 255.

Handkerchiefs finished with an edge made by crocheting. Flax handkerchiefs having the edges trimmed with a colored ornamentation made by crocheting, not being embroidered, tamboured, appliqued, scalloped, or made wholly or in part of lace, are dutiable at 35 per cent. ad valorem under paragraph 282, act of 1913, as "handkerchiefs composed of flax . . . . . finished or unfinished, not hemmed or hemmed only," rather than under the provision for embroidered handkerchiefs in paragraph 358. In the mater of protests 756241, etc., of Marshall Field & Co. against the assessment of duty by the collector of customs at the port of Chicago.

T. D. 35714—G. A. 7774. Sept. 17, 1915. Wool waste. Small scraps of sheepskin with wool on them are not dutiable under paragraph 384, tariff act of 1913, as waste not specially provided for, but are free of duty as wool waste under paragraph 651. By paragraph 651 Congress intended to admit free of duty all forms of wool waste. In the matter of protest 775865 of C. J. Tower against the assessment of duty by the collector of customs at the port of Buffalo.

T. D. 35715—G. A. 7775. Scarfs. Cotton knit wearing apparel. Cotton scarfs made on knitting machines or frames are properly dutiable as cotton knit wearing apparel under the provisions of paragraph 261, tariff act of 1913, rather than under the provision in paragraph 358 of said act for "wearing apparel, and all other articles or fabrics made wholly or in part of lace or of imitation lace of any kind." In the matter of protest 759576, etc., of O. & G. Schoenherr against the assessment of duty by the collector of customs at the port of New York.

Recent Textile Patents

BED FABRIC. 1,152,621. Clarence H. Frederick, Kenosha, Wis.

BLEACHING and Cleaning, Composition of Matter for. 1,151,257. William B. Fink, New York.

BOBBIN MARKING Machine. 1,153,679. William Elliot, Jr., Lawrence, Mass.

COTTON COMBER. 1,151,143. George M. Whitin, Whitinsville, Mass.

DYEING APPARATUS. 1,151,916. John T. Wood, Providence, R. I.

DYEING, Beam Used in. 1,151,917. John T. Wood, Providence, R. I.

FILLING STOP Motion. 1,151,287. Eppa H. Ryon, Waltham, Mass.

FILLING STOP Motion. 1,151,288. Eppa H. Ryon, Waltham, Mass.

HEDDLE or the Like, Detached. 1,153,857. Charles E. Blair, Dorchester, Mass.

HOSIERY MACHINE Attachment, Circular. 1,152,849. Robert W. Scott, Boston, Mass.

LOOM. 1,152,311. Louis Girard, Manville, R. I.

LOOM. 1,152,905. Francois D. Raymond, Fall River, Mass.

LOOM, Circular. 1,153,576. Vernon Royle, Paterson, N. J.

LOOM LET-OFFS, Brake Mechanism for. 1,153,636. Thomas J. Longden, Chelsea, Mass.

LOOM PICKER Stick Attachment. 1,153,595. Frederick Bernier, Fitchburg, Mass.

LOOM SHUTTLE. 1,151,517. Pasquino Ferrari, Fall River, Mass.

LOOMS, Automatic Bobbin Change Device for. 1,152,250. Jean C. Weening, Maulhausen, Germany.

LOOMS, Feeler Mechanism for. 1,150,976. Wm. P. Straw, Manchester, N. H.

LOOMS, Feeler Mechanism for Automatic Filling Replenishing. 1,151,010. Ubald Herbert, Manchester, N. H.

LOOMS, Machine for Handling Tuft-Yarns for Carpet. 1,153,864. Edgar F. Hathaway, Dorchester, Mass.

KNITTED ARTICLE of Apparel. 1,151,126. Lydia M. Robinson, Paoli, Pa.

KNITTING MACHINE. 1,151,428. Louis N. Williams, Ogontz, Pa.

KNITTING Machine Stop Motion, Circular. 1,151,182. Harry A. Houseman, Philadelphia, Pa.

KNITTING MACHINE, Circular. 1,152,850. Robert W. Scott, Boston, Mass.

KNITTING MACHINE. 1,152,373. Albert E. Stewart, Franklin, N. H.

KNITTING MACHINES. 1,151,418. Harry Swinglehurst, Boston, Mass.

KNITTING MACHINES, Thread Carrier-Operating Mechanism for Circular. 1,152,951. Harry A. Houseman, Philadelphia, Pa.

OILLESS Spindle. 1,153,592. Leigh S. Bache, Boundbrook, N. J.

SHUTTLE RELEASE Mechanism. 1,153,500. John W. Killpartrick, Lowell, Mass.

SILK, Making Artificial. 1,151,487. Bernard Loewe, Paris, France.

SPINNING and Winding Machine. 1,153,190. Zachariah E. Booth, New Bedford, Mass.

SPINNING MECHANISM. 1,153,237. Michael H. Maloney, Plymouth, Mass.

SPINNING, DOUBLING, Etc., Frame for Continuous. 1,151,173. Jos. S. Gaunt, Manchester, Eng.

STITCH-FORMING Device. 1,152,482. Otis E. Brown, Brockton, Mass.

THREAD BOARD Lifter. 1,151,384. Oscar L. Owen, Whitinsville, Mass.

THREADING DEVICE. 1,153,345. Charles F. Schultis, Cleveland, O.

TEXTILE MACHINE. 1,153,869. Charles Lea, Boston, Mass.

THEAD CUTTING Mechanism. 1,153,412. Edward B. Allen, Bridgeport, Conn.

THREAD GUIDE. 1,153,742. Frank B. Wildman, Norristown, Pa.

THREAD, Treating. 1,153,004. Charles S. Althouse, Reading, Pa.

TEXTILE TRADE-MARKS RECENTLY FILED FOR REGISTRATION

83,994. Wool tops. Mark: Arlington. Owner: Arlington Mills, Lawrence, Mass.

84,295. Wearing apparel. Mark: St. Margaret. Owner: N. Corah & Sons, Leicester, England.

87,523. Hosiery. Mark: Harmony. Owner: Jos. W. Fussner, Philadelphia, Pa.

88,123. Textile rugs. Mark: Golden Fleece. Owner: Persian Rug Manufactory, New York.

77,615. Table damask. Mark: Colonial Damask. Owner: Young-Hartsell Mills Co., Concord, N. C.

79,126. Bedspreads, sheets, etc. Mark: Tri-Mount. Owner: The Tremont Stores, Boston, Mass.

83,617. Woolen piece goods. Mark: Stonehenge. Owner: Catherine Lovibond, Lake, Eng.

87,252. Wearing apparel. Mark: Week End. Owner: Kahn Bros. Co., Chicago, Ill.

87,921. Children's underwear. Mark: Cub. Owner: Amazon Products Co., Muskegon, Mich.

88,159. Hosiery Mark: Gold Standard. Owner: Harry Harris, Pittsburg, Pa.

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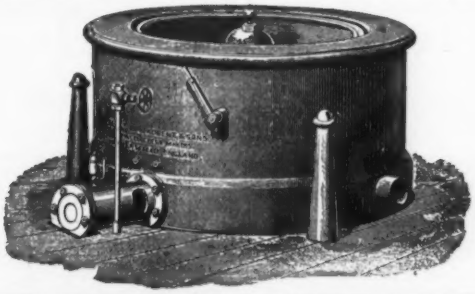

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Southern Textile Exposition

Nov. 2nd to 6th, 1915, Greenville, S. C.

The Exposition is being held under the auspices of the Southern Textile Association and is the **first effort** in the South to promote an exhibition of this kind in the interest of the textile business—and its allied industries.

The Exposition will display exhibits in **four departments:**

A—Exhibits of machinery and mill supplies.
B—Exhibits of cotton fabrics and finished products.
C—Exhibits from Textile Colleges and Welfare Departments.
D—Government exhibit of South American fabrics.

Special railroad rates to Greenville during the period of the Exposition have been obtained, from all points in the Southern territory. These special terms are about equal to a straight two-cent rate, and may be purchased from November 1st to 5th, good to return any time up to and including November 9th.

Make your hotel reservations early, and come to the Exposition.

For further information apply to

Southern Textile Exposition

Box No. 572 **GREENVILLE, SOUTH CAROLINA**

Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Absorbent Cotton Wool Machinery.
Tatham, William, Ltd.

Air Moistening System.
——See Humidifying Apparatus.

Albone.
Roessler & Hasslacher Chemical Co.

Architects and Mill Engineers.
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Charles T.
Myrick, J. W. H.

Asbestos Covering.
Johns-Manville Co., H. W.

Asbestos Products.
Johns-Manville Co., H. W.

Ash Handling Equipment.
Green Engineering Co.
Sturtevant, B. F., Co.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Mch. Co.
Tatham, William, Ltd.
Woonsocket Machine & Press Co.

Back Filling.
International Pulp Co.

Bale Presses.
Saco-Lowell Shops.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Smith & Furbush Mch. Co.

Ballers.
Saco-Lowell Shops.

Ball Bearings.
S. K. F. Ball Bearing Co.

Bandings.
Lambeth Rope Corporation.
Sternberg, Fred, & Co.

Bankers.
Marshall & Company, Inc.

Baskets.
Diamond State Fibre Co.
Lane, W. T., & Bro.
Standard Fibre Co.

Beamers.
Crompton & Knowles Loom Works.

Beaming and Warping Machinery.
Altemus, J. K.
Crompton & Knowles Loom Works.
Draper Company.
Entwistle, T. C., Co.
Lever, Oswald, Co.
Smith & Furbush Machine Co.
Suter, Alfred.
Boston Belting Co.
American Tool & Machine Co.

Bearings.
——See Ball Bearings, Oil-less Bearings and Roller Bearings.

Belting.
Bond, Charles, Co.
Gandy Belting Co.
Graton & Knight Mfg. Co.
Hood, R. H., Co.
Johns-Manville Co., H. W.
Schieren, Chas. A., Co.
Williams, I. B., & Sons.
——See also Mill Supplies.

Belting, Leather.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.

Belting, Link.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.

Belt Cement.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.

Belt Dressing.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.
Stephenson Mfg. Co.

Belt Lacing, Leather.
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.

Belt Tighteners.
Hunter, James, Machine Co.

Bindings.
——See Tapes and Braids.

Bleachers.
——See Dyers, Bleachers and Finishers.

Bleaching Eyes.
Boston Belting Co.

Bleaching Kiers.
Birch Bros. (Albert Birch, prop.).
Butterworth, H. W., & Sons Co.
New England Tank & Tower Co.
Philadelphia Drying Machinery Co.
Stearns Lumber Co., A. T.
Textile-Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Electro Bleaching Gas Co.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.
Wolf, Jacques & Co.
Worden Chemical Works.

Blowers and Blower Systems.
Autoforce Ventilating System.
Buffalo Forge Co.
Carrier Air Conditioning Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
Kunze, Otto.
Leigh & Butler.
Tebbets, E. L., Spool Co.

Bobbin Winders.
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.

Boilers.
——See Steam Boilers.

Boxes, Box Shooks, Etc.
Diamond State Fibre Co.
Pearson, J. T.
Standard Fibre Co.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

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Dyers, Bleachers and Finishers.
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Ashdale Bleachery.
Brophy's, T., Sons.
Davidson, John F.
Franklin Process Co.
Globe Dye Works Co.
Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Wks.
National Silk Dyeing Co.
Peerless Co.
Utica Willowvale Bleaching Co.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Laundry Machinery Co.
American Tool & Machine Co.
Autoforce Ventilating System.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Mach. Wks.
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Buffalo Steam Pump Co.
Butterworth, H. W., & Sons Co.
Consolidated Hospital Sup. & Laundry Machinery Co.
Curtis & Marble Machine Co.
Franklin Process Co.
Giles, J. H., Dyeing Machine Co.
Heathcote, John, & Son.
Klipstein, A., & Co.
Hunt, Rodney, Mach. Co.
Hunter, James, Machine Co.
Hussong Dyeing Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Mch. Co.
Leigh & Butler.
Leyland, Thos., & Co.
Manufacturers Machine Co.
National Laundry Machinery Co.
Parks & Woolson Machine Co.
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Philadelphia Textile Machinery Co.
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Smith, Drum & Co.
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Suter, Alfred.
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Tolhurst Machine Works.

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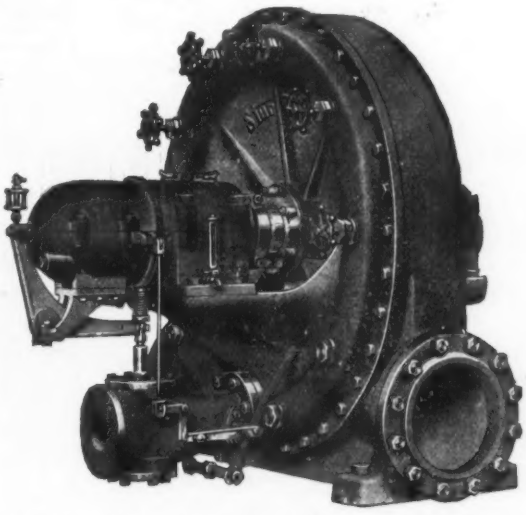


Sturtevant Turbine showing part of main governor mechanism. Note also emergency governor mechanism and the valve it operates. Valve is in supply pipe just outside Turbine casing.

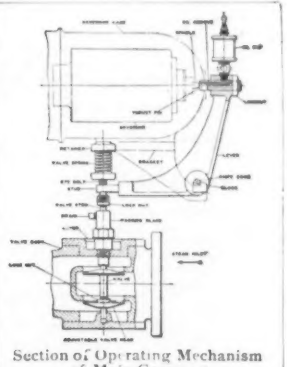
Governing Mechanism of Sturtevant Turbines

REG. U. S. PAT. OFF.

Excellent speed regulation is insured by a powerful direct-connected centrifugal governor. The two revolving weights illustrated directly actuate the balanced throttle valve which effectively controls the steam output.

Besides the main governor there is an independent emergency governor set at a predetermined maximum speed. Both its mechanism and valve are entirely separate from the main governor. Should the predetermined maximum speed be reached, the emergency governor instantly and automatically shuts off the steam.

For other details of Sturtevant Turbines get catalog 210-U



Section of Operating Mechanism of Main Governor

B. F. Sturtevant Company

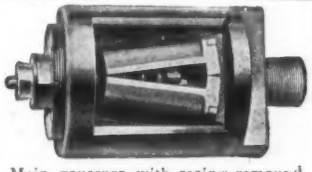
HYDE PARK, BOSTON, MASS.

and all principal cities of the world

Selling Agents:

SANFORD RILEY STOKER CO., *Limited*

"The Riley Stoker"



Main governor with casing removed —Threaded end of governor barrel, which is screwed directly into the main shaft is seen at right. End of hardened steel spindle which is shown at left, acts against thrust pin shown in section drawing.

Uniform Dyeing Machine Co.
U. S. Hoffman Co.

Dye House Cans.
Diamond State Fibre Co.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.
Diamond State Fibre Co.
New England Tank & Tower Co.

Dye Kettles.
New England Tank & Tower Co.
Stearns, A. T., Lumber Co.

Dye Sticks.
Bailey, Frank.
Klauder-Weldon Dyeing Mch. Co.
New England Tank & Tower Co.

Dye Tubs.
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Dyestuffs and Chemicals.
American Dyewood Co.
Badische Co.
Bayer Co., The, Inc.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Electro Bleaching Gas Co.
Farbwerke-Hoechst Co.
Ford, J. B., Co.
Geisenheimer & Co.
Harding & Fancourt, Inc.
Holliday, Read & Sons.
Innis Speiden & Co.
Johnson, Chas. A., & Co.
Kalle Color & Chemical Co., Inc.
Klipstein, A., & Co.
Leyland, Thos., & Co.
McCarty Aniline & Extract Co.
National Aniline & Chemical Co.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Sizing Specialties Co.
Stein, Hirsh & Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.
Wing & Evans, Inc.
Wolf, Jacques & Co.
Worden Chemical Co.

Dynamos.
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Edgings.
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Electrical Apparatus.
Weston Electrical Instrument Co.

Electrical Construction.
Allis-Chalmers Mfg. Co.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Heating Devices.
Crocker-Wheeler Co.
General Electric Co.

Electrical Supplies.
General Electric Co.
Johns-Manville Co., H. W.

Electric Driven Pumps.
Allis-Chalmers Mfg. Co.
Buffalo Steam Pump Co.
General Electric Co.

Electric Fans.
Allis-Chalmers Mfg. Co.
Buffalo Forge Co.
Buffalo Steam Pump Co.
Crocker-Wheeler Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Allis-Chalmers Mfg. Co.
Crocker-Wheeler Co.
General Electric Co.

Electric Lighting.
Allis-Chalmers Mfg. Co.
Cooper Hewitt Electric Co.
Crocker-Wheeler Co.
Edison Lamp Works of General Electric Co.
General Electric Co.
Johns-Manville Co., H. W.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.
Westinghouse Lamp Co.

Electric Motors.
Allis-Chalmers Mfg. Co.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electrodynamometer (Portable).
Weston Electrical Instrument Co.

Electrolyzer.
National Laundry Machinery Co.

Elevators.
Craig Ridgway & Son Co.
Decatur Fndry, Furnace & Mch. Co.
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Otis Elevator Co.
Salem Elevator Works.

Employes' Time Recorders.
Pettes & Randall Co.

Engineers (Ventilating).
Myrick, J. W. H.
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Allis-Chalmers Mfg. Co.
Buffalo Forge Co.
Fairbairn, Lawson, Combe, Barbour, Ltd.
International Gas Engine Co.
International Steam Pump Co.
Snow Steam Pump Plant.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.

Exhaust Heads.
Power Specialty Co.
Sturtevant, B. F., Co.

Extractors.
American Laundry Machinery Co.
American Tool & Machine Co.
Atkinson, Haserick & Co.
Broadbent, Thomas, & Sons.
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Feed Water Pumps.
Blake & Knowles Steam Pump Works.
Buffalo Steam Pump Co.
Goulds Mfg. Co.

Feed Water Purifiers.
American Water Softener Co.
International Filter Co.
Scaife, W. B., & Sons.

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Felt Rotary Washers.
Hunt, Rodney, Machine Co.

Felting Machinery.
Hunt, Rodney, Machine Co.
Smith & Furbush Machine Co.

Fences (Wire) (Iron).
Wright Wire Co.

Fender Boards.
Case Brothers.

Fibre Boxes.
Diamond State Fibre Co.
Standard Fibre Co.

Fibre Trucks.
Diamond State Fibre Co.
Standard Fibre Co.

Filters.
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Hungerford & Terry.
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Norwood Engineering Co.
Permutit Co.
Scaife, W. B., & Sons.

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Pettes & Randall.

Fire Brick.
Borgner, Cyrus, Co.
Johns-Manville Co., H. W.

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Johns-Manville Co., H. W.

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Eureka Fire Hose Co.

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Royersford Foundry & Machine Co.

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Royersford Foundry & Machine Co.

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PANAMA-PACIFIC INTERNATIONAL EXPOSITION
SAN FRANCISCO
AND
GRAND PRIZE
PANAMA-CALIFORNIA EXPOSITION
SAN DIEGO

THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI 28-54

Why Not Buy Loom Harnesses

That Always Weave and Wear the Best?

NO loom harnesses are made with greater care or subjected to a more rigid inspection in the various processes of their manufacture than the harnesses which we are turning out, and it is because of this care and this inspection that our harnesses are always of uniform quality.

GARLAND MFG. CO.
SACO, MAINE

G
TRADE MARK

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Economy Engineering Co.
Hunt, Rodney, Machine Co.
N. Y. Revolving Portable Elevator Co.

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Johns-Manville Co., H. W.
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Weimar Bros.

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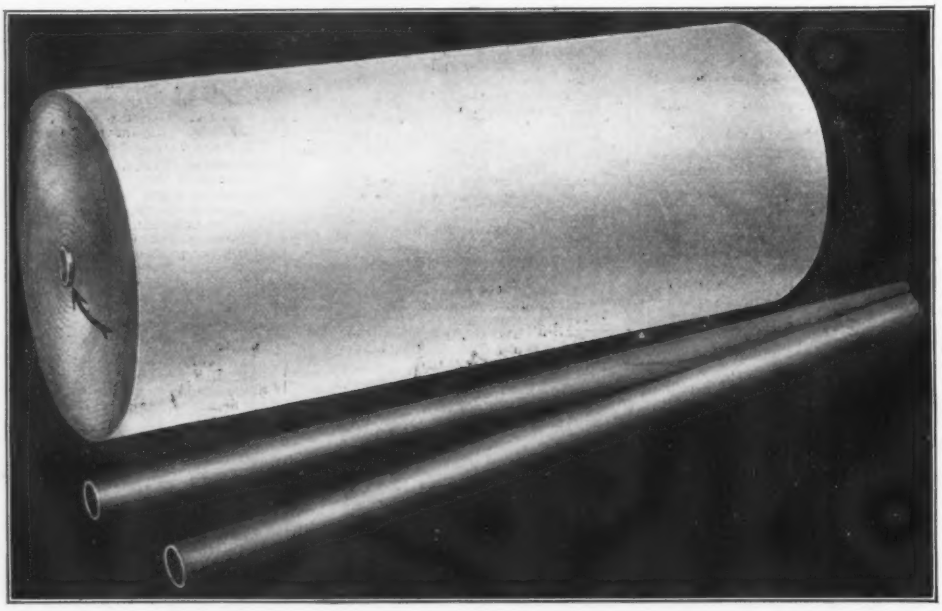

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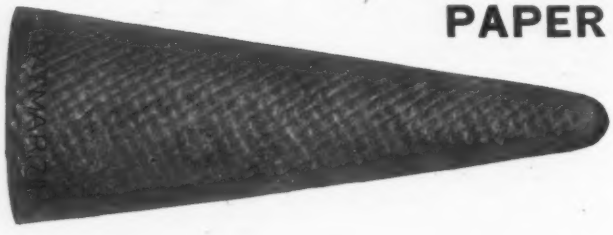

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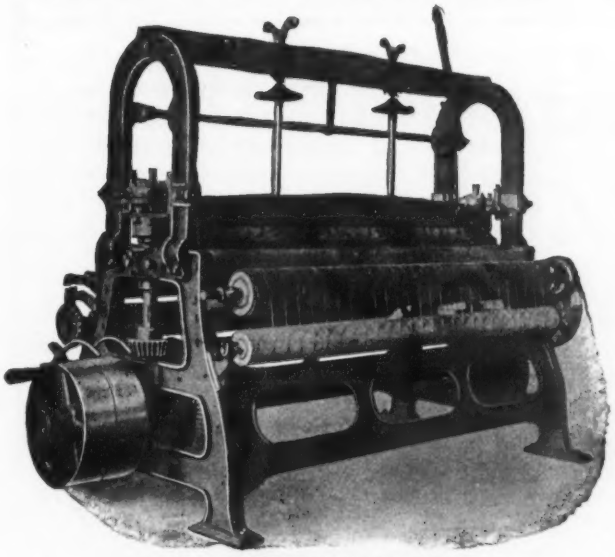

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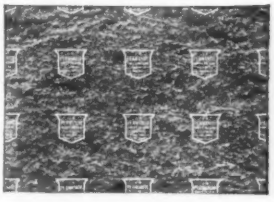

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Southern Textile Exposition

In Greenville, S. C., from November 2nd to 6th inclusive, the Southern Textile Association will hold its first exposition in the South to promote the textile business and its allied industries.

There will be exhibits of machinery, mill supplies, cotton fabrics, finished products; also exhibits from textile colleges, welfare departments and a Government exhibit of South American fabrics.

The Convention of the Association will meet in Greenville, on November 5th and 6th during the progress of the Exposition.

The November Textile World Record will contain a special report of this Convention and for this reason a number of our customers have already sent in orders for increased advertising in that issue.

Those desiring to run special announcements or increase their regular space should advise us as promptly as possible so there will be ample time to prepare advertisements and submit proofs before publication.

—÷—

Have You Changed Your Address?

Subscribers are requested to notify us in writing before the 5th of the month of any change of address desired, as that is the date on which our mailing lists close for the current month. If we do not receive notice of the change until after the 5th, that month's issue will go to the old address and may require postage for reforwarding.

It sometimes happens that because a news item has been published to the effect that he has moved from one mill to another, a subscriber thinks that his address will be changed automatically without any instructions from him and he will sometimes write to the effect that we knew he had moved because we had published an item about it and he does not see why his magazine was not sent to his new address. He forgets that the subscription department is entirely separate from the news department and has 6,000 names to look after and can hardly be expected to search the news columns for possible changes of address, and even if it did, it would not be proper to make changes unless ordered or authorized by the subscriber.

Please, therefore, be considerate, for your own sake as well as ours, and advise us promptly and definitely when changing your address. It helps us very much if your old address is given, as well as your new address stated clearly.

—÷—

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Salmon Falls, N. H., July 14, 1915.
Textile World Record, Boston, Mass.

Gentlemen: Enclosed find $2.00 for another year. Would have sent sooner but have been very busy. With best wishes for the success of the best Textile paper published, believe me

Yours very sincerely,
W. B. Cox.

—÷—

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—Judicious Advertising.

—÷—

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"The advertisement of a business is the outward, visible sign that it is alive. When the advertising flag disappears, he who hauls it down admits that he was a merchant of yesterday. We are dealing with men of today and tomorrow."—Economist.

—÷—

Monthly Circulation Statement

Of this edition over 6,100 copies are printed and all are needed.

The Textile World Record is a Member of the Audit Bureau of Circulations.

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Being so successful for new machinery it should also prove profitable for the advertising of second-hand machinery, and for the sale of anything of special interest to men in the mill who are held responsible for results, e. g., mills, power-plant equipment, supplies, etc.

Therefore, if you have any textile machinery, mill or power-plant equipment that you do not intend to use again, the Textile World Record offers you the best market for its disposal at a fair price. An advertisement this size costs only $16.00 an issue. For further information address:

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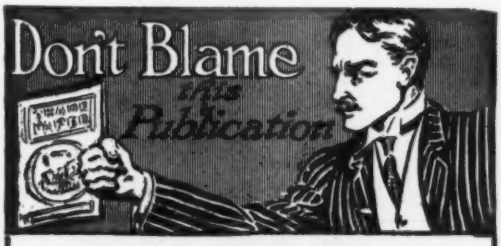

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Great Falls Water Power and Townsite Co., Great Falls, Mont., two water power developments, 75,000 and 50,000 h. p.
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Pacific Mills, Lawrence, Mass., Steam Power Plant.
Royal Weaving Co., Pawtucket, R. I., Weave Shed.
S. Sanford & Sons, Amsterdam, N. Y., Dyehouse and Yarn Building.
S. Slater & Sons, Inc., Webster, Mass., Weaving Mill, Spinning Mill and Boiler Plant.
M. T. Stevens & Sons Co., North Andover, Mass., Weaving Mill, Power Plant and Dye House.
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Warrenton Woolen Co., Torrington, Conn., Complete Plant.
Wood Worsted Mills, Lawrence, Mass., Dye House.
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4-26

COTTON WASTE

By THOMAS THORNLEY

286 Pages : 60 Illustrations : Bound in Cloth, Price $3.00

Designed to be of service to all either directly or indirectly concerned with the production, uses and treatment of cotton waste.

Deals particularly with a description of the machinery and processes involved in the cleaning, opening, carding and spinning of cotton waste, treating the subject comprehensively and in detail.

The processes and machinery required for the production of condenser cotton waste yarns, are given special attention.

At the present time, no one can afford to neglect the question of waste, whether it be with regard to the reduction of its amount, or its profitable utilization.

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Money-Saving, Money-Making Opportunities

This is a special department for those who wish to buy or sell second-hand machinery, mills or mill sites, patents, etc., and for such advertisements as "Help" or "Situations Wanted." A special low rate is charged, viz., $1.00 for one-half inch, single column; $2.00 for one inch, single column, and in the same proportion for larger space. By measuring these advertisements and counting the words you will see what space is needed for your announcement. Remittance should accompany the order. No extra charge for forwarding replies sent in care of the Textile World Record. No advertisement accepted for less than $1.00.

Address: Want-Ad Dept., Textile World Record, 144 Congress Street, Boston, Mass.

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Four 48" Apperly Feeds nearly new, condition guaranteed.

Address Pawcatuck Woolen Mills,
Westerly, R. I.

For Sale

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One 20th Century Tentering and Drying Machine, manufactured by John Heathcote & Son. Size from 45" to 65" wide. This machine can be called absolutely new as we used it only about three months. We wish to sell as we need the room.

ASTORIA SILK WORKS, Long Island City, N. Y.

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For Bleaching, Dyeing and Printing Rollers. Prompt delivery in any quantity. All consignments made direct from Adirondack Woods. Write for prices.

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HARDING & FANCOURT, Inc.

Kensington Soap Works

Soaps of Quality, Turkey Red Oil, Tuscan Softener Soluble Oils and Olive Oil

516-18 So. Delaware Ave. PHILADELPHIA

FOR SALE

2 Dubied, 2 Grosser, 1 Wildman, 1 Looper, and 1 Payne Winder. All of these machines practically new. Will sell at bargain. For particulars write Joseph Saltzman & Co., 356 West Van Buren St., Chicago, Ill.

FOR SALE

One style 60 S Merrow Machine.
One German Looper (Record) 16" dial 22 pt.
One Geo. D Mayo ladies' hosiery machine 212 needle, 3¾ gauge, high spliced heel and double sole. All can be seen in operation.

Cheap for cash. Address "A-10 15," Textile World Record, Boston, Mass

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Competent, efficient, with initiative and years of experience, traveling Pennsylvania, retail and jobbing trade, can assume responsibility and produce results for reliable manufacturers of merchandise desiring representation in Pennsylvania, strictly commission. Address stating full particulars, "Salesman," Suite 43, 932 Chestnut St., Philadelphia.

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ANILINE DYES

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Subscribers to the TEXTILE WORLD RECORD buy about $250,000,000.00 worth of textile equipment and supplies, not including raw material, each year.

They have no objection to buying second-hand machinery or equipment when that will serve their purpose and cost less than new equipment.

Therefore, if you have any textile machinery, mill or power-plant equipment that you do not intend to use again, the TEXTILE WORLD RECORD offers you the best market for its disposal at a fair price.

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Practical Logwood Dye for Hosiery

Formula, with every necessary working detail, for dyeing a beautiful clean black, great depth of shade, and slight bluish overtone. Meets every practical market requirement. Samples dyed on request.
Address "C-10-15," Textile World Record, Boston, Mass.

Superintendent Wanted

An A-1 man, thoroughly familiar with the manufacture of full fashioned silk hosiery, to take the position of superintendent in a mill in South America. Must be capable of taking down and erecting full fashioned machines and be able to invest about $2000. in the company. Excellent opportunity for the right man. None other than men whose record will stand thorough investigation need apply.

Address "H-10-15," 120 Liberty Street, New York City.

Sweater Machines

FOR SALE

Three Syfert & Donner, five-cut, single-lock, full automatic power sweater machines, on one frame.

Three Syfert & Donner, seven-cut, single-lock, full automatic power sweater machines, on one frame.

Three Sander & Graff, five-cut, single-lock, full automatic power machines, on one frame.

Three Sander & Graff, seven-cut, single-lock, full automatic power machines, on one frame.

One Hillscher cotton patent automatic fashioning, fine-gauge, Shaker sweater machine, four-head.

All machines in first-class running condition, to be disposed of at sacrifice price in order to make room.

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NYACK PLANT

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United Piece Dye Works

Located at NYACK, N. Y.
29 miles from New York City

100,000 square feet floor space
Complete power plant
Sprinkler system
Electric lights
Steam heat
Elevators

Joseph T. Day

SALES AGENT
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Connection with textile mill desired by chemist who has had charge of Bleachery laboratory and is familiar with dyes and dyeing. Able to organize laboratory for testing all supplies and to conduct experiments tending to more efficient operation. Best references. Address D. G. W. "G-10-15," Textile World Record, Boston, Mass.

SALESMAN WANTED, who will sell as a side line a new chemical article, used in Knitting Mills, partly introduced already in some large mills. To sell on good commission. Exclusive territory given to right party.

Address "E-10-15," Textile World Record, Boston, Mass.

Commercial Engineer Desires Suitable Position.

10 years experience as representative of weaving, bleaching, dyeing finishing, mercerizing, knitting, braiding and ribbon machines. Correspondent in several languages. Draftsman practice. Address D-10-15, "Efficiency," Textile World Record, 120 Liberty St., New York.

Wants Position as Superintendent

Ex Bradford Manufacturer and formerly teacher of designing and cloth construction at Bradford Technical College, now residing in America, wants position as Superintendent or Designer and Overseer. Accustomed to all classes of Worsteds for Men's wear. Also plain and fancy dress goods and linings. Both all wool, mixed and all cotton, silk stripes, etc. Has done business in goods and knows requirements for markets of England, India, South America, Chili, Canada, Australia, Japan and the States, etc. Highest references. For full particulars write "Bradfordian," care Textile World Record, Boston, Mass.

Wanted a position as assistant superintendent of cotton mill by young man 28 years of age and married. Has had experience in cotton mill as book-keeper, and is at present overseer of dyeing and bleaching. Also completed the **Complete Cotton Manufacturing Course** with The International Correspondence School. Can furnish best of references as to ability and character. Address "F-10-15," Textile World Record, Boston, Mass.

Assistant Superintendent Carpet Mill

Opening for smart active young man for above position, in carpet plant making Brussels, Wiltons and Axminsters, also spinning. Applicants to state age, previous experience and salary desired. Applications treated confidentially. Address "K-10-15," Textile World Record, Boston, Mass.

WANTED A SALESMAN

who is at present calling on the Cotton Mills to handle several meritorious articles on a strictly commission basis. State lines at present handled. Address "I-10-15," Textile World Record, Boston, Mass.

FOR SALE CHEAP, FOR CASH ONLY

5 Warp Spoolers and Creels, Wood drums, D. & F.
2 286-spindle D. & F. Mules, 1 3-4 in. gauge.
1 Warp Spooler with inspecting cylinder.
1 48-spindle Warp Spooler.
1 40-spindle Warp Spooler.
1 Dresser 96 in., D. & F. complete.
2 D. & F. Dressers, 106 in., 3-pieces, with 2 copper drums, 20x40 in., complete.
1 D. & F. Beamer.
1 Worcester Warp Compressor, 106 in.
1 Worcester Warp Compressor, 72 in.
1 Shear Machine, Curtis & Marble, 60 in.
10 Sets 44x48 Cards, 3-pc., with Bramwell and Apperly Feeds and McBride waste conveyors with connecting belts, all ready and in fine condition for immediate use, including card clothing; 3 sets with Barker rub apron, D. & F., and 7 sets with Rub Rolls.
1 Single Cylinder Card Grinder, 44 in. wide.
1 Single Cylinder Card Grinder, 48 in. wide.
1 48 in. Turning Rest.
3 Disc Fans, 48 in. diameter.
2 Curtis & Marble Flock Cutters.
1 Shear Grinder.
1 Parks & Woolson, 60 in., Steaming and Brushing Machine.
1 Curtis & Marble Steam Finishing Machine.
1 Brush Cleaner.
1 Cylindrical Indigo Grinder.
1 Rolling Machine with Brush.

Bobbins, Jack Spools, Teasel Slats, all in good condition.

THE NORWALK WOOLEN MILLS CO., Norwalk, Conn.

COMPLETE KNITTING MILL FOR SALE

The Sakonnet Knitting Mills have been making high grade underwear for men and boys since 1910. The building is modern and first class in every way and the interior was recently thoroughly cleansed and painted.

The building is brick, two-stories and basement with a floor space of 17,625 square feet. Inside measurements of building over 100 feet long and more than 58 feet wide. Thoroughly sprinkled and heated throughout. There are 23,196 sq. ft. land.

Operated by electric power supplied by local electric company.

MACHINERY

All machinery is in first class condition having been properly cared for and can be seen at any time. In addition to all of the necessary auxiliary machinery for the manufacture of underwear for men and boys, including modern office equipment, there are:

22 Scott & Williams Knitting Machines
11 Cooper Spring Needle Machines
7 Tiffany & Cooper Cuff Machines
1 Leighton Collar Stripping Machine
14 Union Special Machines
10 Willcox & Gibbs Lock-Stitch Shirt Finishing Machines
5 Payne 40-end Winders
1 Payne 24-end Winder
1150 Bobbins for Payne Winders

LOCATION

The plant is located at Pawtucket, R. I., midway between Providence and Pawtucket, making high grade help easily available. Many of the present employees have been with the firm several years. The property is offered in its entirety as a going plant and I should be glad to receive any reasonable offer.

WALTER H. STEARNS, Receiver

Sakonnet Knitting Mills, Pawtucket, R. I.

Situations Wanted

Manufacturers who are in need of Superintendents or overseers for any department of mill work may learn of suitable men upon application by mail or telephone to C. T. DONLEVY, care Textile World Record, 144 Congress Street, Boston, who will give prompt attention to their requirements without charge.

Manager or superintendent; would consider position as boss weaver; has worked on linen, union and cotton goods in all kinds of jacquard, dobby and plain weaves; understands jacquard weaving thoroughly; familiar with weaving and bleaching machinery of all standard makes; Crompton & Knowles, Draper and Atherton looms; 35 years of age, married; good references.
6543, Textile World Record, Boston, Mass.

Boss Weaver; has worked on Brussel and Wilton carpets; familiar with all classes of Brussel and Wilton looms; 45 years of age, married; good references.
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Chemist or assistant in dyestuff house or textile works; has worked on cotton print goods; 21 years of age; good references.
6545, Textile World Record, Boston, Mass.

Boss Carder and spinner or boss carder; has worked on all kinds of wool, cotton and shoddy mixes; has run all these mixes on work from 27 to 56 run on low stock; familiar with Davis & Furber cards and mules, also Johnson & Bassett mules; 32 years of age, married; will not go to Conn., N. Y., or N. J.; good references.
6546, Textile World Record, Boston, Mass.

Overseer of Dyeing in cotton mill; has worked on sateens, twills, calico goods and cassimeres; familiar with Butterworth and various other machines; 42 years of age, married; good references.
6547, Textile World Record, Boston, Mass.

Boss Weaver in woolen mill; has worked on all classes of fabrics for men's and ladies' wear; familiar with Crompton, Crompton & Knowles, Crompton & Thayer, Davis & Furber and other machines; 38 years of age, married; will not go West or to Canada; good references.
6549, Textile World Record, Boston, Mass.

Overseer of Spinning in woolen mill; has worked on cotton, wool and shoddy mixes; silk noil mixes; double and twist nub yarn; all wool knitting yarn; familiar with Davis & Furber and Johnson & Bassett mules; 38 years of age; will not go to Pa., N. Y., N. J., West, South or to Canada; good references.
6548, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning wants position; worked on fine and coarse goods; familiar with the Davis & Furber machines; good recommendations; 45 years of age, American, married.
6556, Textile World Record, Boston, Mass.

Clerk in Weaving Department in charge of calculation of goods; 26 years of age, German, single; is familiar with woolen goods; could take charge of yarn department; good reference.
6557, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; 39 years of age, English, married; worked on all classes of goods made from cotton, wool and shoddy, also worked on hosiery, carpet and blanket yarns; familiar with the Platt, Whitney & Son, Johnson & Bassett and Davis & Furber mules; good reference.
6559, Textile World Record, Boston, Mass.

Overseer of Weaving; familiar with cotton, worsted, silk, tapestry and cloth rugs; accustomed to Crompton & Knowles, Kilburn & Lincoln looms; 50 years of age, English, married; good reference.
6558, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; has worked on all classes of woolen goods, also knit yarns; familiar with all makes woolen machinery; 39 years of age, married; will not go South; good reference.
5403, Textile World Record, Boston, Mass.

Boss Dyer on worsteds and woolens; has worked on worsted and woolen piece goods, raw stock (wool), worsted, yarns and slubbing; familiar with Klauder-Weldon machine; 45 years of age, married; good reference.
6561, Textile World Record, Boston, Mass.

Superintendent in knitting mills; has worked on nearly all kinds flat and ribbed goods; familiar with Stafford & Hoit, Snyder, Wildman, Pepper, Scott & Williams, Nye & Tredick, Leighton, Tomkins Spring & Cooper; 43 years of age, married; good reference.
6560, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning, or would consider second hand in large mill; has worked on wool, cotton and shoddy mixed goods; familiar with Davis & Furber, Johnson & Bassett, Brother & Woonsocket, Smith, Flat and Bancroft mules; 40 years of age, married; will not go to N. H., N. Y., N. J.; good reference.
4489, Textile World Record, Boston, Mass.

Superintendent and designer in woolen mill; would consider management of small mill; has worked on ladies' dress goods, cloakings, men's wear and overcoatings; familiar with all makes woolen machinery; 37 years of age, married; will not go South or to Canada; good reference.
6562, Textile World Record, Boston, Mass.

Overseer of knitting in underwear mill; or would consider position as assistant foreman; has worked on underwear 8-10-12-14 cut, 7 to 80 cotton and worsted yarns; familiar with Scott & Williams, Wildman, Fisher, Nye & Tredick machines; 39 years of age, married; will not go South or to Canada; good reference.
6563, Textile World Record, Boston, Mass.

Boss Dyer in Woolen Mill; would consider position as second hand or assistant dyer in large mill; has worked on all kinds of raw stock and piece, including fancy cassimeres, knickerbockers, broadcloths, flannels, silk effects and overcoatings; familiar with raw stock and piece dyeing machines; 26 years of age, married; will not go West or South; good reference.
6564, Textile World Record, Boston, Mass.

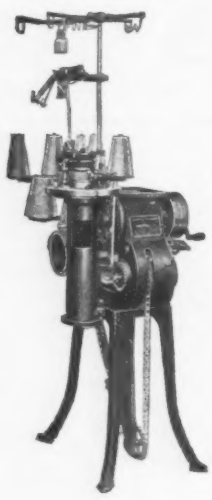
Overseer of Weaving in cotton mill; has worked on all kinds of plain, fancy, lenoes goods both in cotton and silk, also Jacquard work; familiar with Stafford, Whitin, Mason, Crompton & Knowles and Kilburn & Lincoln looms; 32 years of age, married; will not go to Vt., Penn., N. Y., N. J., West, South or Canada; good reference.
6565, Textile World Record, Boston, Mass.

Second Hand of Wet Finishing or would consider position as boss fuller; has worked on all classes of woolen goods and cotton warp goods; familiar with Rodney Hunt, Greene nappers, James Hunter, Curtis & Marble, Davis & Furber and Parks and Woolson machines; 31 years of age; good reference.
6539, Textile World Record, Boston, Mass.

Overseer of Knitting; has worked on 1/20 to 2/100 yarns and 2/48 silk goods; familiar with Crane, Scott & Williams, Wildman, Huse and various other machines; 45 years of age; married; good reference.
6540, Textile World Record, Boston, Mass.

Boss Finisher; has worked on all grades of woolens and worsteds, uniform and carriage cloths, shawls, dress goods, chinchillas and worsted serges; familiar with Hunter Bros., Parks & Woolson, Curtis & Marble, Volker and Gessner presses; 32 years of age; will not go to Canada; good reference.
6541, Textile World Record, Boston, Mass.

Why Not Have Your Plant Flexible?



It is no longer necessary to buy hosiery machines of special diameter that can be used for only one class of goods.

By installing our Model G machines you can make all sizes of men's, women's, children's and infants' stockings upon the same machine and without the use of ribbers.

ESTABLISHED 1865

SCOTT & WILLIAMS, INC.

NEW YORK **88 Pearl Street, Boston** UTICA

*Canada, New Brunswick, Moncton. Fifty new hosiery knitting machines are being added to the equipment of the Atlantic Underwear, Ltd., formerly the Humphrey Unshrinkable Underwear, Ltd.

Canada, Ontario, Toronto. Frank W. Robinson, Ltd., manufacturers of sweater coats and novelties at 49 Bathurst St., are desirous of starting a small hosiery plant to manufacture men's and women's seamless hosiery in cotton, lisle and silk. They are interested in necessary machinery and other equipment.

Maine, Lewiston. Laurendeau Bros., 282 Lisbon St., small manufacturers of woolen stockings, will install a few new machines.

Michigan, Grand Rapids. Five new machines have been added to the equipment of the Star Knitting Works, manufacturers of underwear. An automatic sprinkler system has been installed in the building. Several months ago the concern was looking for a new location but it is probable that a decision has been made to continue in the old location.

New Hampshire, Franklin. A brick addition, to be either two or three stories high, a decision not having been reached as yet, together with a brick office building, will be constructed by the Sulloway Mills. The mill is to be used for the manufacture of woolen yarns and new machinery will be added to the extent of 5 sets of 60-inch cards, and 8 320-spindle mules. Lockwood, Greene & Co., Boston, are the engineers. When the new mill is equipped employment will be given to about 50 more hands. The Sulloway Mills manufacture men's, women's and children's full fashioned and ribbed hosiery in cotton, wool, worsted and merino. A. W. Sulloway is president and treasurer; Richard W. Sulloway, assistant treasurer and buyer, and H. F. Davis, superintendent.

New Jersey, Belvidere. John E. Allen is planning to make further enlargements at his hosiery plant. It was reported in June that more machinery would be installed. The present plan is to build an addition to provide space for more knitting machines. Misses' ribbed and ladies' hosiery are manufactured.

*New Jersey, Hammonton. David Cottrell's knitting mill, which has been closed down for the past year or more, is said to have been taken over by W. F. Taubel, Inc., of Riverside, N. J., who will re-equip it with machinery and start it up again about the middle of September. The plant formerly contained 75 knitters on which they manufactured children's seamless hosiery.

New York, Kinderhook. A number of hand knitting machines in the plant of the Kinderhook Knitting Company are being changed over to power machines.

*New York, Utica. Good progress is being made on the work of building another story 270 by 110 feet, on No. 4 Mill, of the Oneita Knitting Mills, Inc., and the new space will be ready for use during October. More knitting machinery will be installed.

*North Carolina, Asheboro. Work has been started on the new 2-story addition, 60 by 100 feet, to the plant of the Acme Hosiery Mills. The building will be of brick construction and will cost from $8,000 to $10,000. Machinery equipment will include 100 knitting machines and electric motors. Women's seamless hosiery is manufactured. D. B. McCreary and T. H. Redding, the president and treasurer, attend to the buying.

*North Carolina, Charlotte. The new mill being erected for the Defiance Sock Mills is to be completed and new finishing machinery added about October 15. When the concern is established in the new quarters the equipment will include 40 knitting machines, 5 sewing machines, and a finishing department, making men's and women's split sole hosiery. Morehead Jones is treasurer and buyer, and E. C. Sanders is superintendent.

Ohio, Cleveland. A lot, 320 by 144, on E. 27th St., between Payne Ave. and Chester Ave., has been purchased by the Bamberger-Reinthal Company as a location for the new $100,000 mill. It is reported that plans are being prepared for a new plant and that construction work will probably be started next spring. The company, however, reports that they will not begin building for a year and a half, or even later. Bamberger-Reinthal Company manufactures fancy knit goods, sweaters, etc., on present equipment of 150 knitting machines and 75 sewing machines. Gustave Bamberger is president; Manuel Reinthal, vice-president, and Sol Reinthal, treasurer.

Pennsylvania, Ephrata. A fire sprinkler system has been installed in the plant of Walter W. Moyer, a manufacturer of women's ribbed underwear. Several months ago a 4-story addition was built.

Pennsylvania, Philadelphia. Mathias Bros., manufacturers of seamless hosiery for women in cotton, silk and mercerized, with 40 knitters, have recently removed their plant from Marshall and Tioga Sts., to larger quarters in the mill buildings at Kensington Ave. and Venango St., where additional machinery will be installed at an early date to enable them to enlarge their production.

Pennsylvania, Philadelphia. The Acme Knitting Co., Inc., who have been operating a plant at 2042 E. Clementine St., with 20 knitters on knitted neckties, sweater coats and fancy knit goods, have removed their plant to larger quarters at 2787 Emerald St. The company has a capital of $5,000; J. T. North, president, and George Y. Lilley, secretary and treasurer. The production is sold direct.

Pennsylvania, Reading. George W. Hawk Company, Inc., manufacturers of seamless mercerized and silk half hose, at Walnut and Thorn Sts., will build a new knitting mill, machinery to be operated by electric power, on land just acquired at Sterling Ave. and Elm St.

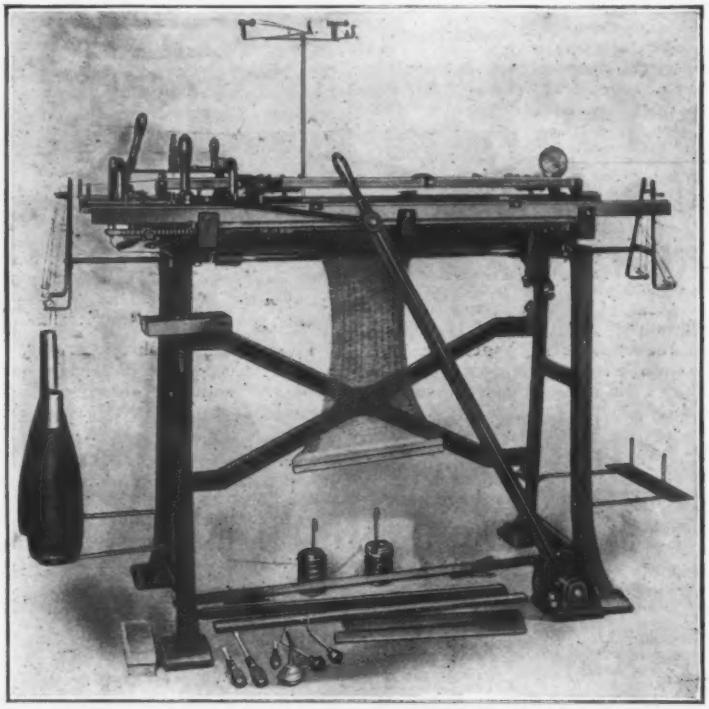
*Pennsylvania, Souderton. New machinery to be installed in the addition to the plant of M. B. Bergey Company will be set up ready for operation before the end of the month. As noted in a previous report 50 176-needle knitters for making split foot hosiery are to be added.

Prompt Deliveries

—ON—

Links Links or Pearl Stitch Machines

of new improved construction in current gauges and sizes



The new Grosser Type L. L. D. machine with hinged sinkers assuring rapid operation with practically *no needle* or sinker breakage on account of elimination of troublesome Jack lifters.

For particulars and prices apply to

The Grosser Knitting Machine Co.

Max Nydegger

260 West Broadway, New York

Michigan, Grand Haven. A manufacturing site has been purchased by the Amazon Knitting Company of Muskegon, and a branch finishing plant to give employment to about 100 girls will be established. A building, 60 by 180 feet, 1-story high, is to be constructed. The Amazon Knitting Company manufactures women's and children's underwear and children's waists. M. H. Powell is superintendent and buyer.

*Michigan, Ypsilanti. It is expected the Consolidated Hosiery & Novelty Company, whose organization was recently noted, will begin manufacturing lines of hosiery for men and women, and knitted garments for men, women and children at 603 Michigan Ave. about the first of October. The equipment will include 12 knitting and 40 sewing machines operated by electric power. The capital stock of this company is $25,000. B. S. Boyce is agent and buyer.

Minnesoto, Duluth. A new sweater and hosiery knitting factory has been established at 49th Ave., W., and Oneto St. under the name of the West Duluth Knitting Mill Company. J. A. Leidfors, Olaf Bertilson, George Bertilson and P. G. Borgstrom are interested. It is understood that the manufacture of underwear will be taken up later.

New York, Brooklyn. The Bonnard Specialty Company is manufacturing Angora and novelty cloth at 112-16 Berriman St., with 10 knitting machines and 8 sewing machines. G. M. C. Bonnard, who was president of the Angora Fur Company, Inc., when it occupied the Berriman St. location, heads the new concern. They are interested in spooling, twisting and winding machinery, sewing machines and supplies.

New York, New York City. A concern known as the Alvin Knitting Mills began the manufacture of silk sweaters at 49 E. 21st St. about the middle of August with three knitting machines. They are interested in further equipment for knitting and finishing. A. Schwartz is buyer.

Pennsylvania, Bally. A new hosiery plant has been established here under the name of the Herbert Hosiery Mill, making ladies' fine seamless hosiery from 40s, 50s, 60s, 70s and 80s single and two-ply combed Peeler yarns. Seventeen knitting machines are operated and the product is sold to jobbers. The location of the plant may be changed and if a suitable location is found it is expected that new machinery will be installed. Leon S. Herbert is the buyer. The Philadelphia office is at 16 Letitia St.

Pennsylvania, Philadelphia. M. S. Sudowshi has fitted up a plant in the rear of 218 Arch St. for the coning and spooling of silk and artificial silk with 2 coning machines and 2 spoolers. The plant also contains 3 knitting looms on which will be manufactured a line of silk fabrics and trimmings for the sweater trade on a commission basis.

Pennsylvania, Philadelphia. A plant for the manufacture of woolen, worsted and silk sweater coats is being equipped at 1016-1018 Hamilton St., with 25 knitting machines and 4 sewing machines to be operated under the name of the Queen Knitting Mills. The production will be sold direct.

Pennsylvania, Philadelphia. Report has it that M. A. Metz, formerly of the Alphia Knitting Mills, is contemplating starting up again in the manufacture of sweater coats, having purchased machinery for that purpose and installed it at Orianna & Vine Sts.

*Pennsylvania, Phoenixville. The new women's underwear plant, recently noted, will do business under the style of the B. B. Knitting Mills. A 1-story building, formerly known as the Eggleston King plant on North Wheatland St., near the Pennsylvania R. R. tracks, will be occupied. No machinery has been received as yet, but they expect to get started about October 15. Frank E. Bader, a local shoe dealer, and David Buck, a plumber, are the men interested. Mr. Bader will do the buying.

Rhode Island, Providence. A plant is being established at 40 Clifford St. to manufacture high grade spring needle knit jerseys and bathing suits by Daniel J. Maloney, under the name of the Providence Knitting Company. 2/30s, 2/18s and 2/14s worsted, single 30s worsted, and 18/1 cotton will be bought. Mr. Maloney's address is 669 Leonard St., Brooklyn, N. Y.

North Carolina, Greensboro. The Proximity Mfg. Company and the White Oak Cotton Mills, which were closed for several weeks on account of lack of dyestuffs, have resumed manufacturing.

North Carolina, Statesville. Manufacturing has been resumed at the Paola Cotton Mills after an idleness of several months. 20s and 30s cotton yarns are manufactured.

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We Have the Following Colors in Stock To-day:

Acid Blacks	Direct Blacks	Chrysophenines
Acid Scarlets	Direct Scarlets	Chrysodines
Acid Yellows	Direct Yellows	Auramines
Acid Oranges	Direct Oranges	Methylene Blues
Acid Greens	Direct Greens	Methyl Violets
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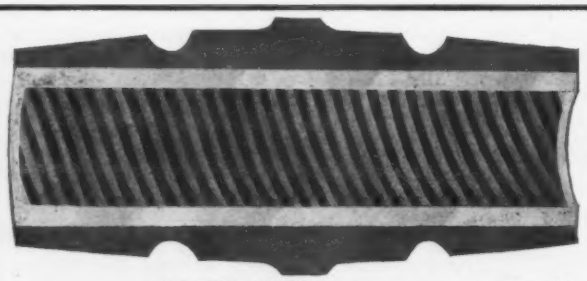

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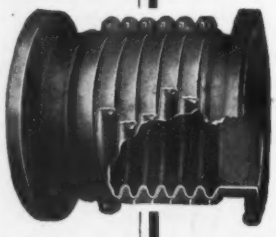

Here's an expansion joint for steam, gas, or water pipe lines which is low in first cost, is absolutely reliable, never requires packing, and lasts a life time. It is made of corrugated copper with equalizing rings to insure each corrugation taking its share of the expansion. Made in all sizes and for any pressure.

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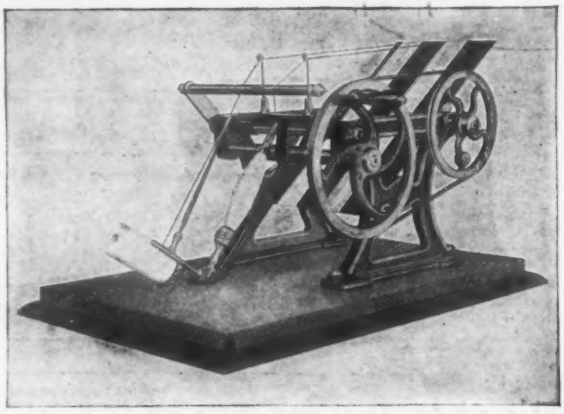

North Carolina, Lowell. A quantity of combing machinery is to be installed in the Lowell Cotton Mills, manufacturers of 30s cotton yarns.

North Carolina, Randleman. A new weave room is being built at No. 1 Mill of the Deep River Mills, Inc., to provide space for 204 more looms. Recently 50 seamless bag looms were installed in Mill No. 2. A large steel water tank with a capacity of 50,000 gallons is being built for fire purposes.

North Carolina, Troy. Some of the new looms in the Smitherman Cotton Mills are in operation. It was noted recently that 180 automatic looms would be installed to replace old equipment.

North Carolina, Williamston. A system for cleaning machinery by compressed air is being installed in the Williamston Mills.

*Rhode Island, Woonsocket. The 1-story addition recently built to the dye house of the Nyanza Mills, is to be used for dyeing skeins and warps. When the new department is in full operation employment will be given to about 25 additional hands.

South Carolina, Rock Hill. Eighty-two new looms have been purchased by the Victoria Cotton Mills and will soon be installed. Staple ginghams are manufactured.

Tennessee, Shelbyville. The Sylvan Cotton Mills will add about 3,000 spindles with necessary drawing machines, cards, etc., also 36 40-inch looms for weaving duck. W. J. McGill, treasurer of the Sylvan Cotton Mills, was recently reported to be organizing a new company under the name of the Valley Cotton Mills with capital stock of $50,000.

*Texas, Cuero. Work has been started on the foundation for the addition to the Guadalupe Valley Cotton Mills, recently noted. Considerable new machinery will be added, including 5 cards, 4 spinning frames, and 32 looms for weaving cotton duck. There will be very little interruption of operations although some of the present machinery will be rearranged.

*Georgia, Forsyth. Manufacturing will be started November 1 at the Forsyth Cotton Mills, a reorganization of the old Star Cotton Mills. As noted in previous reports a large quantity of new equipment is being installed to replace old machinery and will put the plant in first-class condition. 8s to 16s yarns will be manufactured.

Mississippi, Moorhead. It is reported the old Bellevue Mills are being started up on automobile tire fabrics by Walter H. Carter and associates, who secured the property several months ago and organized a new company known as the Mississippi Cotton Mills Company. According to reports new equipment is to be added. An office is maintained at 200 Security Bldg., St. Louis.

North Carolina, Burlington. Manufacturing has been resumed by the Lakeside Mills which have been idle for about a year. Plaids for export exclusively are manufactured and the concern has experienced considerable difficulty with the dyestuff situation.

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Licker-in Grinding and **Dressing Machine No. 93**

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BODY—Vulcanized Fibre. SIDE SEAM—Riveted with patented Clinched Rivets. RINGS—Tinned Steel, Brazed Joints, Curled Edges. BOTTOM—IXXX. Tin Star Corrugation; Fastened without the use of nails or screws, will not crack, warp or shrink and cannot come out. FINISH—Coated inside and out with moisture proof coating, handsome and smooth. WEIGHT—About one half pound per inch diameter. SIZE—All cans to any exact size, perfectly round any true. DURABILITY—Superior to any other can.

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Successors to WILLIAM C. BULL, Manufacturers of
Hosiery, Glove and Mitten Boards
Drying Form Boards for Knit Garments
Patent Improved Fulling Mills for Knit Goods, Hosiery, Etc.
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*Massachusetts, Westboro. Manufacturing has been started by the new Novelty Weaving Company at 36 Brigham St., making tubular ties, tie silks, silk beltings, shirtings, woolen and worsted dress goods. The company has been incorporated with capital stock of $15,000, and Stillman B. Clarke has been elected president and superintendent and John P. Thorup, treasurer and buyer. It was noted recently that Mr. Clarke had been running a few looms on Milk St. under the name of S. B. Clarke Company, and this business would be taken over by the new concern and more machinery added. When all the machinery is set up and running it is expected that about 25 hands will be given employment.

New Jersey, West Hoboken. Walter Frueh, 707 Highpoint Ave., a manufacturer of embroideries, is building a new $20,000 embroidery factory at Monastery St. and Kerrigan Ave. It is understood that about $30,000 worth of machinery will be installed. Edward F. McDermott is the architect.

Pennsylvania, Derby. Robert E. Morrey, formerly connected with the Ansonia O. & C. Company, Ansonia, Conn.; Edwin B. Gager, Jr., of Ansonia, and Judge Edwin B. Gager, of Derby, have organized the Derby Textile Company with capital stock of $25,000. The new concern will equip one of the old Alling Mills for manufacturing braids, corset laces, shoe laces, suspender braids, etc. The building to be occupied is a 2-story structure and alterations are being made in it and a new elevator put in. It is hoped to begin operations by the first of October.

*Massachusetts, North Dighton. The addition being built for the Mount Hope Finishing Company will be 2 stories high, 100 by 100 feet, and will be used as a storehouse.

Massachusetts, Williamstown. An addition is to be built by J. S. Boyd Company, manufacturers and finishers of corduroys and velveteens. The work will be started in the near future.

New Hampshire, Keene. A number of new looms are being installed in the factory of the Keene Artistic Narrow Web Company. Several new looms were added to this plant in May. Corset and garment trimmings are manufactured. This is a branch of the New Hampshire Artistic Web Company, of Barnstead, N. H.

Pennsylvania, Philadelphia. The United States Thread Company have removed their plant from their old location on Cherry St. to 241-243 Arch St., where they have taken over almost the entire building and almost quadrupled their equipment. They are manufacturing all kinds of threads, and recently put on the market a new thread for the knitting trade which has become quite popular. They also report a large business on a special line of threads for the straw hat trade and a new finish thread for the sweater trade. In addition to these lines after considerable and successful experimenting they are also putting on the market threads for use in the manufacture of gas mantles. They are at present very busy and are in want of a thread dresser and would be glad to hear from any one having a machine of this kind for sale. They sell direct.

Important Announcement

To Electrical Engineers of Textile Mills

Weston

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Single-Phase and Direct Current Portable Electrodynomometer WATTMETER

An Instrument that will indicate with equal accuracy (guaranteed ¼ of 1%) on either A.C. or D.C. Circuits. They can be used on circuits of any commercial frequency without appreciable error.

They are provided with double ranges for both current and voltage circuits. All current ranges can be used for 100% overload indefinitely, without introducing error.

They have an extremely low moment of inertia. They are effectively damped; indications are independent of room temperature and the instruments are shielded from external magnetic fields.

The scales, which are 5¼ inches long, are uniform throughout their *entire* length, a characteristic of great importance. Each scale is hand calibrated and provided with a mirror over which the knife-edge pointer travels and pointers are equipped with a simple zero setting device.

For complete information regarding Model 310 Wattmeters (illustrated) and Model 329 Portable A.C. Polyphase Wattmeters write for Bulletin No. 2002. Other Models in this group are Model 341 A.C. and D.C. Portable Voltmeter, described in Bulletin No. 2004; and Model 370 A.C. and D. C. Portable Ammeter, described in Bulletin No. 2003.

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You perhaps need one or more motor trucks to haul freight to and from the railroads, to make short cross country trips, to handle local deliveries, to remove debris from the premises.

Whatever the requirement, there is one of the seven sizes of KisselKar Trucks that will meet it. These trucks carry, respectively 1000 pounds, ¾ to 1 ton, 1 to 1½ tons, 1½ to 2 tons, 2½ to 3 tons, 3½ to 4 tons and 6 tons.

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We would like to have them tell you of the great dependability and economy of their trucks.

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New York, Boston, Philadelphia, Chicago, St. Louis, Milwaukee, Minneapolis, St. Paul, Dallas, San Francisco, Los Angeles, Oakland, Cincinnati, Omaha, Cleveland, Detroit, Toledo, Columbus, Rochester, Buffalo, Baltimore, Pittsburgh, Duluth, Dayton, New Orleans, Nashville, Hartford, Conn., New Haven, Troy, Norfolk, Providence, Marshalltown, Ia., Madison, Montreal, Toronto Calgary, Victoria and three hundred other principal points in the United States and Canada.

Pennsylvania, Philadelphia. The Ashdale Bleachery, which began operations on a small scale about a year ago in Manayunk, has secured larger quarters on Frankford Ave., above Lehigh Ave., in the heart of the Kensington Mill district. The building to be occupied has been remodeled and new improved machinery installed for bleaching cotton, wool, silk and artificial silk hosiery. It is proposed later to install a department with special machinery for bleaching and finishing cotton fabrics, towels, etc., also a plant for dyeing logwood colors on hosiery. Thomas Ashdale is manager.

Rhode Island, Slatersville. Changes and improvements are under way at the plant of the Slatersville Finishing Company and new machinery will be installed to enlarge the capacity of the plant. Henry P. Kendall, of Norwood, Mass., is now the treasurer.

Rhode Island, Warren. Six new machines have been added to the equipment of the French Mfg. Company, a new concern which does a business of manufacturing thread yarns in the Cutler Mills.

Rhode Island, Woonsocket. New machinery is being installed in the Woonsocket Falls Mill. The plant is running overtime three nights a week. Plushes are manufactured. Edward F. Timme is president; Otto Timme, treasurer, and Arthur Robertshaw is superintendent. E. F. Timme & Son, New York, are the selling agents.

*Massachusetts, Barrowsville. Operations are being carried on to some extent now at the Barrowesville Bleachery, which has been taken over by the Defiance Mfg. Company. Within the next 60 days construction work will be started on additions recently noted. The products are tracing cloth, book cloth, blue print cloth, tag and shade cloths, and in addition a business of commission bleaching and finishing for the trade will be carried on. The company has capital stock of $800,000. John B. Stetson, Jr., is president; Arthur Van Siclen, 311 Madison Ave., New York City, general manager, selling agent and buyer; C. H. Watmough, superintendent.

*Pennsylvania, Kutztown. Fincus, Harrel & DeLong, whose organization was recently noted, have begun manufacturing rugs with six looms. This number will be increased to 28 or 30 looms later on. The brick mill formerly used by the Reider-Fisher Shoe Company has been secured.

Pennsylvania, Royersford. It is reported the plant and business of the Royersford Embroidery Company has been purchased by Robert Myers of Philadelphia and that additional machinery will be installed and the mill started up.

Pennsylvania, Williamsport. The Eureka Braid Manufacturing Company has succeeded the Royal Braid Manufacturing Company, the new owners having purchased the equipment from the receiver. Paul Stubenrauh, superintendent of the old company, and other parties are interested. They are manufacturing silk, cotton, mohair and worsted braids and novelties, operating 500 braiding machines.

MILL NEWS

Maine, Portland. The plant of the Wool, Importing & Knitting Co., 45 Market St., is closed and the business will be settled up. Possibly a new company will be started under a new name.

New York, Little Falls. The Gilbert Knitting Company is running as usual after a shut down of one month to make needed repairs and improvements.

North Carolina, New Bern. F. G. Battle, of the Craven Chemical Co., is interested in establishing a small factory here for manufacturing hosiery and would like necessary information.

Ohio, Youngstown. A concern known as the Block Gas Mantle Company is manufacturing gas mantles and narrow fabrics here on 150 circular knitting machines and two narrow fabric jacquard looms, buying cotton and ramie yarns. Otto Kaufmann is president and manager, and Edw. S. Kaufmann is superintendent.

Pennsylvania, Allentown. The Weneck Mills, manufacturers of chinchillas and other knitted fabrics at 617 Court St., have elected Joseph M. Beck, president; Robert A. Walp, secretary and Millie I. Dixon, treasurer. The company has capital stock of $5,000.

Pennsylvania, Catawissa. Harry West, who operates the Arhet Hosiery Mfg. Company here, threatens to move the mill to some other place if more labor is not available. About 30 hands are employed at present and 40 more hands are required. A citizens' committee is endeavoring to get the necessary labor.

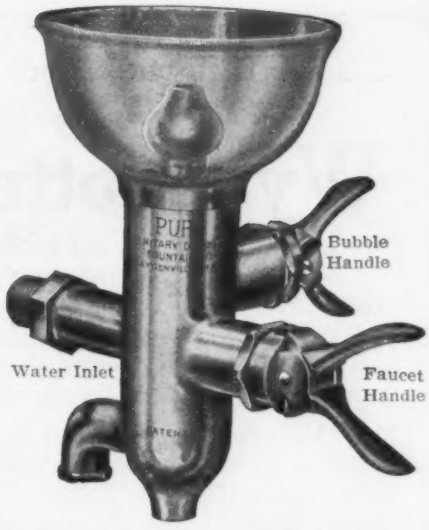
Pennsylvania, Philadelphia. Ellwood C. Matlack, president of the Progressive Knitting Mills, manufacturers of women's ribbed underwear with one of the largest mills in the Schuylkill Valley, located in Royersford; also president of the Keystone Stocking Mills, manufacturers of half hose in Spring City, Pa., has opened up offices at 108 Carpenters Court, near 4th & Chestnut Sts., which will be used as offices and warerooms for both mills.

Pennsylvania, Reading. A number of local textile plants are in need of help of various kinds.

*Tennessee, Murfreesboro. It is reported that arrangements are being made for establishing the proposed underwear knitting mill here. Charles C. Groat, who formerly operated a plant at Scranton, Pa., W. C. Bilbro, T. H. Harrison, James R. Jetton and A. C. Johnson are interested. It is reported that machinery has been secured for a capacity of 300 dozen suits daily.

Wisconsin, Chippewa Falls. Men representing a knitting mill in Pennsylvania have been here looking for a site for an underwear mill. The Progressive League has taken up the matter.

Wisconsin, Milwaukee. A new knitting concern has been organized under the name of the Wilson Knitting Works with capital stock of $5,000 to manufacture and deal in knit goods. The incorporators are James C. Wilson, William Fillmann and Jannette Fillmann.



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The old time faucet is costly. Running hour after hour, day after day, its ceaseless flow is costing you money yet without any better service.

Puro Saves 35%

A Puro Sanitary Drinking Fountain will cut that water bill 35%. We can prove that it has done that for others.

It will give every employee a safer, saner draught of bubbling water free from the contamination of the common drinking cup.

In a word, it is the only sanitary Drinking Fountain that is really safe, sanitary, simple, automatic in control and easy to attach.

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PURO SANITARY DRINKING FOUNTAIN CO.

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We ask your consideration of

Wyandotte Textile Soda

because it matches up with our Twentieth Century civilization.

There are a number of uses for which it is not fitted. But for those for which we recommend it, it shows a marked improvement over any other process; so noticeable is this improvement that once the mill man is "shown" he becomes a constant user of Wyandotte Textile Soda.

We have no disposition to claim the impossible for this article, but we very much desire that you should use it. When you know it as we know it, and use it where it is intended to be used, there is not the least doubt in our minds but what you will be as anxious to continue its use as we are to have you.

Do you know about

Wyandotte Concentrated Ash

and

Wyandotte K. B. Special?

They are just as efficient for what we recommend them as Wyandotte Textile Soda is for its intended uses.

Order from your supply house.

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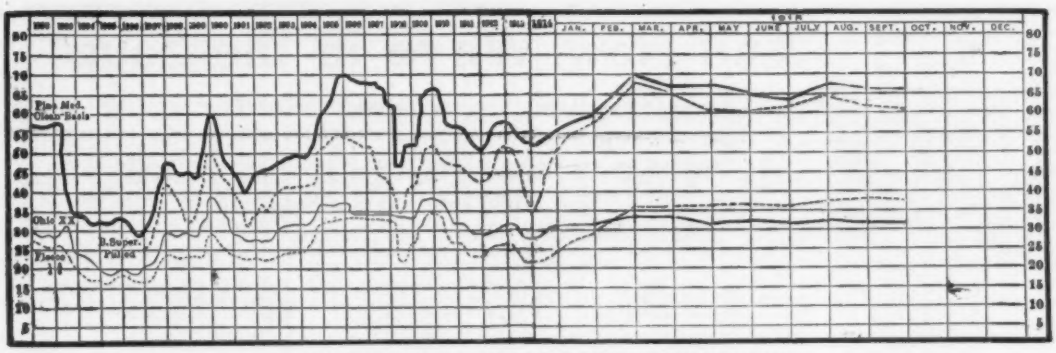
This Soda has been awarded the highest prize wherever exhibited

Welcome to the Wyandotte Booth—Panama Pacific International Exposition, Agricultural Bldg., Block 6, Cor. Ave. A and 3rd St.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Fine Med. Clean Basis
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CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

The course of the wool market in this country has been dominated since our last report by the news concerning the release of crossbreds by the English Government. The size of the world's clip is no longer the standard by which the wool supply is measured. The new standard is the ability or willingness of the British Government to release wool for export in this country. While the announcement is made of 125,000 bales of Colonial and English crossbreds that can be spared for export, few licenses have been granted. This, however, is not surprising, as it requires about two weeks to obtain the coveted permission after application has been made. Domestic mills, particularly the carded woolen mills, are very busy, but this does not mean a correspondingly large consumption of wool, as the worsted business still lags behind the carded woolen competitor. This is due to the fact that carded woolens are required for army goods and the Allies have recently placed large contract for army cloths in this country.

MILL NEWS.

*New York, Amsterdam. Contract has been let by Shuttleworth Bros. Company for the new buildings recently noted and ground has been broken for foundations. One structure will be 6 stories high, 243 by 62 feet, and the other will be 6 stories high, 170 by 54 feet.

New York, Gloversville. Plans have been approved and work has been started on a 2-story addition to the plant of E. S. Parkhurst Co., Inc. The structure will be 42 by 200 feet. This addition is to be an extension of the plant erected following the destruction of the old buildings by fire in July, 1914. The E. S. Parkhurst Company manufactures shoddy and has capital stock of $200,000. A. P. Souls and E. S. Parkhurst are the buyers.

Pennsylvania, Philadelphia. A permit has recently been granted for the erection of a four story brick and stone building, 193 by 82 feet, to be used as a warehouse for John & James Dobson, Inc., manufacturers of carpets, woolen and worsted fabrics and yarns in Manayunk. The cost of the operation is estimated at about $30,000. It is also said that the corporation, whose main offices are now on Front St., above Market, are arranging to remove their headquarters to a building owned by them on Chestnut St., above Eighth St., about the first of the year.

Pennsylvania, Philadelphia. A contract has recently been made with a local builder for the erection of a new mill building at Adams Ave. and Leiper St., to be four stories, of concrete, 113 by 58 feet, the estimated cost of the operation being $15,000. This building, it is said, will be occupied by Walker & Stine, operating the Delwood Mills with 136 looms on men's wear, dress goods and couch and pillow covers, now located in a portion of the Vigilant Mills at the same address.

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FOR COTTON

We offer these products in all shades for the dyeing of cotton in any form.
Among them will be found colors specially adapted to meet the various requirements of fastness to light, washing, cross dyeing and fulling.
Shade cards and samples, with full information, cheerfully furnished on application.

AMERICAN DYEWOOD COMPANY
NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

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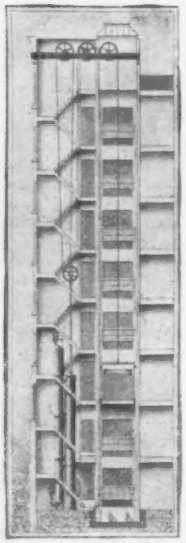


Steam-Hydraulic Elevator in a Great Soap Factory in Jersey City

And Now We're in the Soup!

You see it is this way:

The Joseph Campbell Co. of Camden, N. J., are the makers of the celebrated Campbell Soups so popular all over the land.

They have purchased the old Washington Park and are going to build the finest Soup Factory in the world.

The Campbell Co. engineers—for this concern is one of the best managed in the land - took the trouble to investigate the Ridgway Steam Hydraulic a little bit.

They went to the **John Wanamaker** factory and saw four Ridgway elevators in daily service and heard what the folks there had to say about them.

They went to other plants in Camden and Philadelphia and saw for themselves the Ridgway elevators under all kinds of conditions of service.

Maybe they wrote to some of these folks, who knows, for the Campbells are wise. That is why their business grows.

R. J. Reynolds Tobacco Co.	Proctor & Gamble Co.	United Gas Improvement Co.
Packard Motor Car Co.	DuPont Powder Co.	Revere Rubber Co.
Steinway Piano Co.	John Morrell & Co.	Chinese Government
Cluett Peabody & Co.	Onyx Hosiery Folks	General Electric Co.
John Wanamaker	United States Gov't.	Lowell Machine Co.
National Cash Register Co.	Sears, Roebuck & Co.	Remington Typewriter Co.
International Harvester Co.	United States Steel Co.	Consolidated Gas Co.

Then they sent for Ridgway and gave him the order for the Ridgway Steam Hydraulic.

Here is what we guarantee the Campbell Co. and what we will guarantee you.

1. An elevator that runs at virtually no cost.
2. Absolutely fool proof.
3. No repairs.
4. Always goes.
5. Goes when the engine is shut down.

NO PAY UNTIL IT MAKES GOOD

No Factory Man as smart as the Soup Makers will fail to

"Hook 'er to the Biler"

CRAIG RIDGWAY & SON CO., Coatesville, Pa.

ELEVATOR MAKERS TO FOLKS WHO KNOW

Lambeth Spinning Tapes

Are of the same high quality as the

Famous "Lambeth" Banding

Here are a few reasons why the trade welcomes us as competitors of older concerns in the tape making field.

LAMBETH SPINNING TAPES:

1. **Stay on longest;**
2. **Made to withstand the wear on the edge;**
3. **Always uniform in quality;**
4. **No job lot or mixed yarn used;**
5. **Although elastic will stretch but little;**
6. **High quality at low price.**

"LAMBETH TAPES STAY PUT"

Send for Samples

LAMBETH ROPE CORPORATION, New Bedford, Mass.

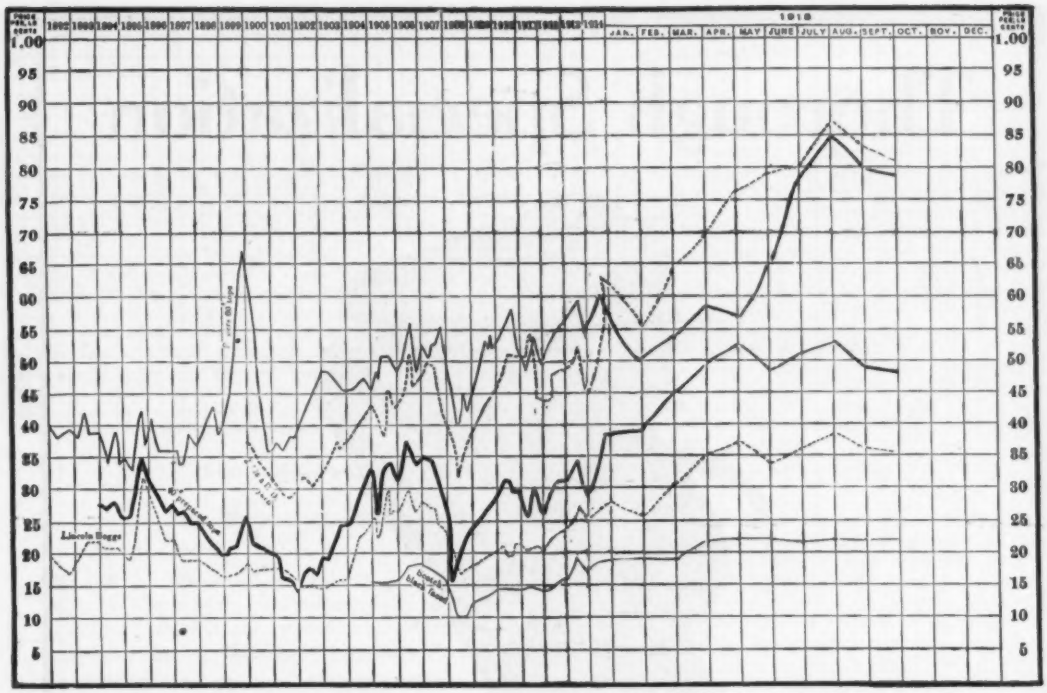


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

Bradford, Sept. 27, 1915.

When affairs become quiet and the appearance of a decline begins, the strength of demand has the habit of asserting itself with the result that values are left much as before. There is no saying how long this may be continued, but the time is at hand when in ordinary years buying becomes active. Ordinary experience is scarcely a criterion, but it would seem that in the home and accessible export markets private stocks of fabrics are light and one or other of the Allies comes in at the critical junctures, be it for wool, tops, yarn or cloth.

It is still impossible for combers to satisfy all demands for merino at the required dates, as time is an element as vital as prices in certain cases, and quotations are held firm. It is taken freely for granted that the permission to export a limited quantity of crossbred and British wools can only be to strengthen the values of the remainder and as prices have fallen a little the liberty to export is welcome to holders of these wools. Owners of machinery are still in command of a premium upon their services and are counting on doing well certainly for many months forward.

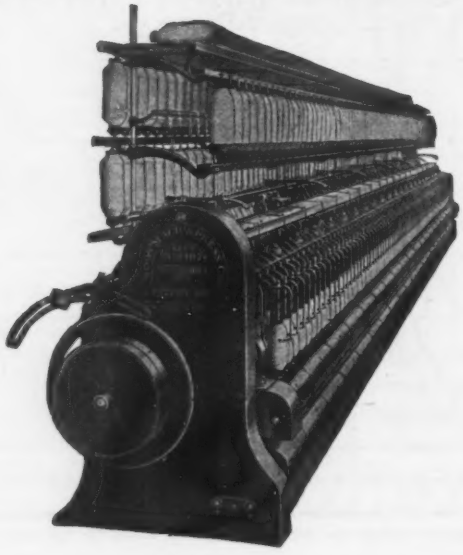
The trouble over the large contract for French blue-gray army cloth remains outstanding. The business was booked at $1.56 a yard and the French authorities have not offered the owners of the goods more than $1.20. The margin between these prices looks like proving ruinous to somebody. The party through whom the orders passed is stated to have offered a forfeit of $300,000, but this does not nearly meet the bill.

Vermont, Northfield. Charles M. Davis & Co., manufacturers of white flannels, are installing a new water wheel.

*Virginia, Winchester. The improvements being made in the power department of the Virginia Woolen Company include the installation of two new 150 h. p. boilers, an electric generator direct connected to a 500 h. p. engine. A new engine room is being erected and when the changes are completed the plant will be driven by the group drive system. The change will enable them to supply all their own power, heat and light.

*Washington, Washougal. Some extensions both to buildings and equipment will be made at the Union Woolen Mills, recently reported purchased by the Pendleton (Ore.) Woolen Mills, who had operated the mill under a lease for the past three years. The output of wool blankets and knitting yarns is to be increased. For some time the local plant has been operated on a night and day basis. This schedule is to be maintained. For the present the Washougal mill will be continued as a branch of the Pendleton mill.

Thorough Specialization



confined to certain definite lines of cotton mill equipment has enabled us to produce for over a generation machines of the most advanced type.

The Woonsocket Roving Frame

is still today the most popular speeder in the mind of both agent and overseer.

Its advantages over all other roving frames are easily demonstrated, and its many distinctive features—the improved Chain Drive, eliminating the horse-head—the Ball Bearing Rolls—the light running frame—the low gear speed—are but a few of the factors that make for supremacy.

We will appreciate the opportunity of demonstrating its advantages.

Woonsocket Machine & Press Company

100 Summer Street, Boston, Mass.

Specialists in Cotton Mill Machinery

Pickers and Revolving Flat Cards
Potter & Johnston Machine Co.
Pawtucket, R. I.

Ring Spinning and Twisting Frames
Fales & Jenks Machine Co.
Pawtucket, R. I.

Drawing and Roving Frames
Woonsocket Machine & Press Co.
Shops, Woonsocket, R. I.

Spoolers, Reels and Spindles
Easton & Burnham Machine Co.
Pawtucket, R. I.

Northern Representative, L. W. Campbell, 100 Summer St., Boston
Southern Representative, J. H. Mayes, Independence Bldg., Charlotte, N. C.

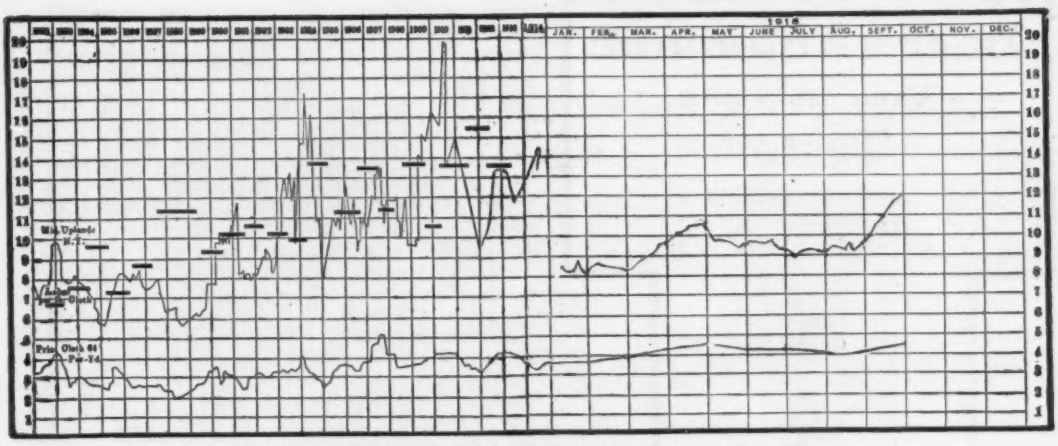


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.
The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

There has been no lack of reasons advanced for the rise in the price of cotton. Among them figure a short crop, an unexpectedly large consumption, unfavorable weather conditions, the success of the Anglo-French loan with the resulting improvement in the exchange situation and the more peaceful aspect of our relations with Germany. Back of all these real or supposed influences is the speculative movement, which, starting in Wall St., has extended to the cotton market. For the present bearish influences are ignored. Cotton as contraband is far more attractive than as plain cotton, while the large stocks of cotton in sight attract only passing attention from the speculators.

The movement into sight from Aug. 1 to Sept. 24 is reported by the "Chronicle" as follows:

Year	Bales
1915, Sept. 24	1,396,742
1914, Sept. 25	873,958
1913, Sept. 26	1,913,673
1912, Sept. 27	1,793,304
1911, Sept. 29	1,922,818

The world's visible supply of cotton on Sept. 24 is estimated by the same authority at 3,984,813 bales, as compared with 2,850,892 bales on the corresponding date in 1914, 2,540,051 bales in 1913, and 2,673,486 bales in 1912.

MILL NEWS

North Carolina, Belmont. A. C. Lineberger, R. L. Stowe, and the interests associated with them in the four local cotton yarn mills, are planning to organize a fifth cotton yarn enterprise in Belmont. The matter was discussed at a recent stockholders' meeting of the Imperial Yarn Mills, Inc., and it is said that three-fourths of the proposed capital of $200,000 was pledged. If the mill is built it will probably be under the same management as the other four mills. In some quarters it is stated that construction work on the building will probably be started January 1. The newest of the local mills, the National Yarn Mills, Inc., was organized a little over a year ago and has been in operation only a few months.

*North Carolina, Concord. Work has been started on the foundation for the plant of the new Norcott Mills Co., recently reported incorporated with authorized capital stock of $250,000. The property known as the White Farm, consisting of 175 acres, has been purchased. This land adjoins the Brown Mfg. Company's property. Plans have been made for a two and three story building, of the most modern construction, to manufacture 24s to 30s double carded knitting yarns and it is expected manufacturing will begin during May, 1916. C. W. Johnston, president of the Highland Park Mfg. Co., Charlotte, is president; F. J. Heywood, treasurer of the Brown Mfg. Co., Concord, is treasurer; and William G. Broadfoot, superintendent of the Brown Mfg. Co., is agent. Messrs. Heywood and Broadfoot will attend to the buying. The production will be sold by the Johnston Mfg. Co. The equipment will include a dye house for raw stock and electric power equipment.

*North Carolina, Granite Falls. Construction work will be started in about ten days on buildings for the Falls Mfg. Company, recently incorporated with authorized capital stock og $200,000, of which $100,000 has been subscribed. There will be two buildings, one 268 by 75 feet, and the other 75 by 40 feet, of brick and concrete construction. The equipment will include 5,000 spindles and a 250 h. p. steam engine to make single 30s combed hosiery yarns. J. D. Elliott has been elected president, and D. H. Warlick, treasurer and buyer. Mr. Elliott expects that the new plant will begin manufacturing in the spring of 1916.

Baer's Automatic
Yarn and Cloth
Tester
MOTOR DRIVEN

Sold Exclusively Through
ALFRED SUTER
Textile Engineer
200 Fifth Ave., New York

The Metallic Drawing Roll Co.
INDIAN ORCHARD, MASS.
MANUFACTURERS OF
Metallic Rolls

Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.
WRITE FOR PARTICULARS

*North Carolina, Hickory. Work is to be started soon on the erection of a 2-story mill building, 75 by 100 feet, for the new Highland Cordage Company. Charles H. Geitner and A. A. Shuford, Jr., of the A. A. Shuford Mill Company, are president and treasurer of the new concern. The Highland Cordage Company was incorporated several months ago with capital stock of $75,000 but the charter was recently amended giving authorized capital stock of $125,000, classified as $75,000 preferred and $50,000 common. The new mill will be located opposite the A. A. Shuford Mill.

*North Carolina, Winston-Salem. Seventy-five hundred spindles, 65 cards and accompanying equipment for making 8s to 24s yarns will be installed in the new No. 4 mill to be built by the P. H. Hanes Knitting Company at Hanes, just west of Winston-Salem. The plans were prepared by F. P. Sheldon & Sons, Providence, R. I. Mills Nos. 1 and 2 of the P. H. Hanes Knitting Company are kniting mills, making men's fine ribbed underwear, while Mill No. 3 is a spinning plant. The new No. 4 mill will nearly double the spinning capacity. The building will be 2 stories high, 350 by 127 feet, of brick and steel. Thirty-five houses are also being built for the employes. About a year ago the capital stock was increased to $2,000,000 and there have been rumors for some time that the business would be greatly enlarged and a large lot in the rear of the present plant at Winston-Salem was purchased. P. H. Hanes is president; W. U. Hanes, vice-president, and P. H. Hanes, Jr., secretary and treasurer. The Travers-Wood Company of Richmond, Va., are the contractors.

Tennessee, Shelbyville. A new company has been organized under the name of the Valley Cotton Mills, with capital stock of $50,000, by W. J. McGill, treasurer of the Sylvan Cotton Mills, and others, and it is reported a new mill will be built and equipped. Electric power will be purchased from the Chattanooga (Tenn.) Electric Power Company of Chattanooga, and this concern will add to its facilities by building a hydro-electric plant on Duck River, near Shelbyville

Connecticut, Danielson. Several months ago it was noted that the Quinebaug Company had increased its capital stock from $500,000 to $750,000. This new stock is now being issued and it is reported that $100,000 worth of new machinery will be purchased including cards, pickers, roving frames and other preparatory machines. Several hundred more hands will be employed when the increase is completed. Recently 250 new looms for weaving pillow tubing were added to the equipment and are in operation.

Connecticut, Unionville. Work has been started on the foundation of the new mill for J. Broadbent & Sons and an increase will be made in the equipment. It is reported that they will have 13 sets of cards when equipment is installed in the addition and that when the new machinery is ready for operation, night work will be discontinued.

*Georgia, Athens. All work is practically completed on the addition to the plant of the Southern Mfg. Company noted several weeks ago, and orders have been placed for necessary material and equipment

It is wise to think things over, but also wise to be guided by the experience of others.
Most successful manufacturers use the

Eastman Cutting Machine

and the reason they do so is the reason youshould.

Free trial for all styles

Straight Knives **Round Knives** **For Direct or Alternating Current**

EASTMAN MACHINE COMPANY, BUFFALO, N. Y.

NEW YORK, 816 Broadway.
BALTIMORE, 1019 E. Baltimore St.
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DETROIT, 97 Wayne St.
BOSTON, 564 Washington St.
PHILADELPHIA, 110 N. Sixth St.
SAN FRANCISCO, 682 Mission St.

A HANDKERCHIEF FREE

A postal sent us will bring each weaver in the U. S. A. a handkerchief—we know you do not need it for home purposes—but you do need to see how well it is woven

THE WARPS WERE SIZED WITH

THE SEYDEL MFG. Co.

88 Forrest Street **Jersey City, New Jersey**

Makers of SOAPS For Textile Mills

MERCERIZED YARNS

Dyers, Bleachers, Gassers

Dyers of Colors Fast to

SUN AND BLEACHING

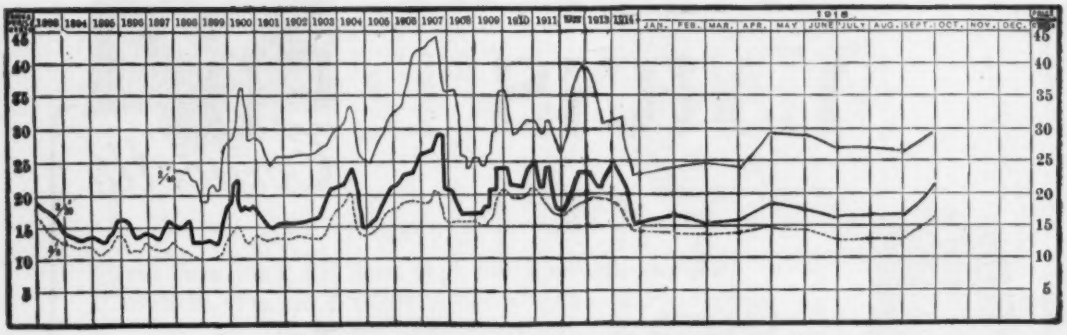
Aberfoyle Manufacturing Company

CHESTER, PA.

402 Morris Building
Philadelphia

746 Insurance Exchange
Chicago

Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

THE COTTON YARN MARKET

The advance in the cotton market and the increased demand for yarns is rapidly bringing prices to the basis they were at the start of the European war. Some sizes are now only a cent below those prices at this writing. All textile lines are experiencing improved conditions and the only problem today is how to obtain sufficient dyestuffs. In some lines of dress goods the cheaper blacks are apparently satisfying the demand, but where sulphur black is absolutely necessary and where colors are required manufacturers are in a serious predicament. While spinners have advanced prices cotton has been able to outdistance them and unless there is a falling off in the demand for yarns, prices must go still higher.

As to knitting yarns the general knitting trade seems to be holding off from making purchases owing to the recent advances in yarn values which have been commensurate with the values obtainable with the prices of manufactured goods. There is consequently a lull in the buying market and many of the knitters prefer to play a waiting game in the hope of being able to get better prices for their goods and at that time they will be only too willing to pay better prices for their yarns. From general indications as to the future outlook of conditions it is probably safe to say that the cotton market is up to stay and it is the general belief that if the market continues to hold firm, prices of cotton yarns will have a tendency to rise rather than fall.

Eastern Cops

6s	15¾
8s	15¼
10s	16¾
14s	16¾
16s	17¾
18s	18¼
20s	18¾
22s	18
24s	18¾
26s	20¼
30s	21¼
34s	23
36s	24
40s	25
12s	17½
14s	18
18s	19
20s	20
24s	21
26s	22
30s	23
36s	25½
40s	27½
45s	31½
50s	33½
55s	39½
60s	42½

Eastern Two-Ply Warps, Carded Peeler

2/30s	23½
2/36s	25
2/40s	28
2/45s	32½
2/50s	34½
2/60s	43½

*Massachusetts, New Bedford. An increase will be made in the spinning department of the Dartmouth Mfg. Corporation on the completion of the new 3-story adition, 30 by 420 feet, to the mill on the east side of Harbor St. The addition is to be completed in four months. C. W. Praray is the architect and the construction contract has been awarded to the B. F. Smith Company. This addition at the Dartmouth Mfg. Corporation is taken locally as the first of several additions and new buildings to be put up by New Bedford cotton mills in the near future.

SPUN SILK YARNS

We specialize on 2 and 3 ply Spun Silk Yarns in all sizes put up on cones, tubes, spools or skeins in the grey or dyed. Let us figure on your requirements.

Nonotuck Spun Silk is made in the same mill, under the same careful supervision as the famous Corticelli Spool Silk, which has won 40 Highest Awards for superiority at Expositions at home and abroad. Send for samples.

Nonotuck Silk Company

Corticelli Silk Mills Established 1838 Florence, Mass.

THE J. R. MONTGOMERY CO.

Windsor Locks, - Conn.

MANUFACTURERS OF

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

MONUMENT MILLS, HOUSATONIC, MASS.

HIGH GRADE COTTON YARNS White, Colors, Bleached

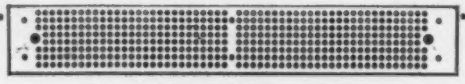
On Beams, Jack-Spools, Cones, Skeins and Chain Warps

FAST-BLACKS & COLORS | For Woolen Mills a Specialty | WE SELL DIRECT

PRESS PAPER

HIGHEST GRADE BEST VALUE

Mills RAINBOW, CONN.



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THE MERWIN PAPER CO

SPECIALTIES

FOR ALL PURPOSES Inquiries Solicited

Address HARTFORD, CONN.

THE PHILADELPHIA MARKET

7s and coarser	18
8s and 9s	18
10s	18
12s	18½
14s	19
16s	19½
18s	20
20s	20½
22s	21
24s	22
26s	22½
30s	24
40s	30
50s	36

Southern high grade mule yarns:—

Cones

10s	21
12s	21½
14s	22
16s	22½
18s	23
20s and 22s	23½-24
24s	25

Southern frame yarn, lower grades:—

6s and 8s	17½
10s	17¾

Eastern cones (high grade quality):

10s	21½
12s	22
14s	22½
16s	23¼
18s	23¾
20s and 22s	24¼-24½

Skein yarn (mostly Southern):—

4s and 8s soft	17½
10s and 12s	18-18½
14s and 20s	19-21
22s	21½
2/10	19
2/16	20½
2/20	21½
2/30	23½
2/40	29
2/50	36
2/60	44
2/8	18½
6/7	18½

Southern warps:—

1/10	18
1/14	19
1/16	19½
1/20	20
1/22	20½
1/26	22
1/30	24
2/8	19
2/12	19½
2/14	20
2/16	20½
2/20	21½
2/26	23½
2/30	24
2/40	29
2/50	36

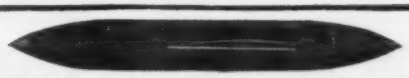
JOHN F. STREET & CO.
Cotton Yarns
PROVIDENCE, R. I.
Providence, Chicago, Philadelphia, New York

Fred Sternberg & Co.
530 BROADWAY, NEW YORK
MERCERIZED GLAZED GASSED } COTTON YARNS

C. MOORE & CO.
Manufacturers of
Twines, Threads and Yarns
Jacquard Harness Twines of all kinds on hand and made to order
S. W. Cor. Fifth and Market Sts., Phila.

JAMES E. MITCHELL CO.
COMMISSION MERCHANTS
COTTON YARNS
122-124 Chestnut Street, - - - Philadelphia, Pa.
Brown Building, 185 Summer Street, - Boston, Mass.

Reels for Cotton WOOLEN AND WORSTED
Patented Hosiery Winders, Cop Winders and Spoolers
LINDSAY, HYDE & CO.,
2124 to 2130 E. York St., PHILADELPHIA, PA.


FIBRE-COVERED SHUTTLES
OF EVERY DESCRIPTION * * * ALSO IN PLAIN
OTTO KUNZE, 2542 Seventh Ave., New York.

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ORSWELL MILLS

FITCHBURG, MASS.

Capacity, 45,000 Spindles

HIGH GRADE YARNS

From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted

JENCKES SPINNING COMPANY

PAWTUCKET, RHODE ISLAND

COTTON YARNS

CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

LINDSAY THOMPSON & CO., LTD.

FLAX SPINNERS BELFAST, IRELAND

Linen Weaving and Knitting Yarns

LINEN THREADS OF EVERY DESCRIPTION

T. J. PORTER & SONS Large Stocks
Selling Agents, Philadelphia Quick Delivery

HUGHES FAWCETT

115 and 117 Franklin St., New York

Linen Weaving and Knitting Yarns

Linen Jacquard Harness Twines

And Linen Yarns and Threads for every purpose

Turkey Red Yarns

LARGE STOCK PROMPT DELIVERIES

Industrial Tape Mills Co.

Jasper and Huntingdon Sts. Phila., Pa.

Manufacturers of

NARROW FABRICS

SPOOL TAPES, STAY BINDINGS AND BRAIDS

Also Sole Manufacturers of

SAXON

New Guaranteed Non-Shrinkable Tape

F. W. MAURER & SONS CO.

MANUFACTURERS OF

Fringes, Tapes, Bindings & Narrow Fabrics

Office and Factory: WAYNE AVE. and BRISTOL ST.
PHILADELPHIA

WRITE — FOR SAMPLES AND PRICES ON SEWING AND SPLICING THREADS IN ALL COLORS TO → TO FLORENCE THREAD CO. FLORENCE, N.J.

HOSIERY AND UNDERWEAR MAKERS WHO WANT TO MATCH COLORS - WRITE

WEIMAR BROS. MANUFACTURERS OF **Cotton Mercerized Tapes**

SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES

Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

KROUT & FITE MANUFACTURING CO.,

MANUFACTURERS OF

Silk, Cotton and Mercerized Narrow Fabrics

SPOOL TAPES A SPECIALTY

TELEPHONE CONNECTION OFFICE AND MILL ALLEGHENY AVE. AND EMERALD ST. PHILADELPHIA

The Ramie Agency **Ramie Yarns and Threads**

Manufacturers' Agents

HAVE REMOVED

TO NEW AND LARGER QUARTERS AT

New York 432 FOURTH AVE. Corner of 29th St.

THE LINEN YARN MARKET

Further advances have been made in the price of linen yarns and it looks as if the quotations have not yet reached their highest point. The business done in linen yarns is only restricted by the amount of yarn that is available for sale as the demand is very considerable in excess of the production. With flax at an excessive price it is not possible for spinners to produce the yarns profitably at the present market price. Owing to the scarcity of raw material and the poor outlook for future supplies it is thought that before long some of the spinning mills will be on short time. Flax has been eagerly bought up at over a 100 per cent. advance on the prices of the same material at this time last year. Coarse numbers in both tows and lines cannot be bought as the government requires their supplies of these yarns to be taken care of by the spinners. In order to keep the mills going as long as possible spinners are seeking for orders for fine numbers in preference to coarse numbers. As there is a considerable demand for all kinds of linen yarns they do not have to go far afield to book such orders as they are willing to accept. The manufacturers in the Belfast district which has been exclusively on linen material are now turning their attention to cotton yarns and have considerable difficulty in securing the yarns suitable for their requirements. Since our last report the prices of yarns have advanced, in many instances almost 25 cents per bundle.

"A" Quality)

35s Lea on cones	1.05
50s Lea on cones	1.10
60s Lea on cones	1.15
80s Lea on cones	1.20
90s Lea on cones	1.30
100s Lea on cones	1.45
110s Lea on cones	1.55
120s Lea on cones	2.00

*Georgia, Forsyth. The following officers have been elected by the Forsyth Cotton Mills, a reorganization of the old Star Cotton Mill: R. P. Brooks, president; Robert T. Persons, treasurer; and W. H. Newton, superintendent. The president and treasurer attend to the buying. The plant is being improved by the installation of new machinery and will be started up about October 1.

*Georgia, Hogansville. Construction contract for the additions and improvements at the Hogansville Mfg. Company, a department of the International Cotton Mills, has been awarded to the Fiske-Carter Construction Company. Lockwood, Greene & Co., Boston and Atlanta, are the architects and engineers. The changes include the building of a new 2-story extension, 275 by 105 feet, the removal of the machine shop and cotton storehouse, and the building of a new 4-story storehouse, 100 by 105 feet, and a small waste house.

Style No. 5020

An Accurate and Sensitive Balance for Textile Use

Working parts and graduated beam enclosed in glass metal case.

For further particulars mention Style No. 5020.

Torsion Balances used by National, State and Municipal Governments, United States Appraisers Stores, Manufacturers and the trade. *Write for Textile Pamphlet.*

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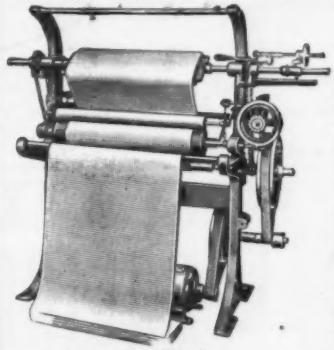
Pacific Coast Branch - San Francisco, Cal.

Let Us Solve Your Cloth Packaging Problem



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We make a specialty of machines to Double, Wind, Roll, Measure, Trademark, Yardnumber, Inventory, Un-roll, Re-wind and handle all kinds of cloth

Parks & Woolson Machine Co

SPRINGFIELD VERMONT U S A

Wool Burring and Picking Machinery
Cloth Finishing Machinery

RAG OR SHODDY PICKER

Curtis & Marble Mch. Co.

WORCESTER, MASS.

MILL NEWS

Connecticut, Norwalk. The Norwalk plant of the Mianus Mfg. Company is being started up. This mill is equipped to manufacture imitation fur goods and plushes which are finished at the main plant at Coscob, Conn.

Maine, Sangerville. A lease of the Sangerville Woolen Mill until January 1, 1916, has been taken by the Old Town (Me.) Woolen Company and the local mill will be started up at once. The Old Town Woolen Company has more orders on hand than it can handle and needs the additional capacity obtained by the lease. It has been noted recently that L. J. Coburn has organized a new concern known as the Glencoe Woolen Company, to take over and operate the Sangerville Mill and is trying to interest capital. At the expiration of the Old Town Woolen Company's lease it is expected that the plant will be continued in operation by the Glencoe Woolen Company.

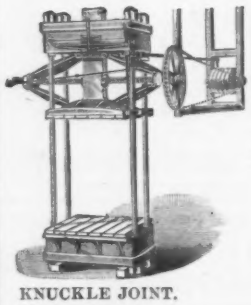
Massachusetts, Leicester. The Leicester Woolen Company, Charles R. and Robert Ashworth, proprietors, has resumed manufacturing after having been closed since May 1. On that date the arrangement to weave cloth on commission for the Valley Woolen Mills, of Cherry Valley, Mass., expired, and it was decided to add a dyehouse and finishing department and to make a different line of goods. The new dyeing and finishing department has been completed and the plant has an order on hand which it is said will keep it in full operation for several months.

Pennsylvania, Wyoming. The business of the Anthracite Silk Throwing Company, commission silk throwing, has been incorporated with capital stock of $70,000. It is understood that Peter Magagna, the present manager, will continue in that capacity.

South Carolina, Spartanburg. E. S. Tennent, formerly a dealer in mill supplies, will act as purchasing agennt for a number of mills, including the Beaumont Mills and Saxon Mills, Spartanburg; Chesnee Mills, Chesnee; Clifton Mfg. Company, Clifton; D. E. Converse Company, Glendale; Erlanger Mills, Lexington, N. C.; Gainesville Cotton Mills, Gainesville, Ga.; Inman Mills, Inman, S. C.; Pacolet Mills, Trough, S. C., and New Holland, Ga., and the Cowpens Mfg. Company, Cowpens, S. C. Mr. Tennent has opened an office in the Chapman Bldg., Spartanburg.

Tennessee, Chattanooga. The Chattanooga Aseptic Cotton Company has been organized with capital stock of $50,000 and has taken over the plant of the Aseptic Cotton Products Company, 1911 E. End Ave. No changes will be made in the equipment at this time. Absorbent cotton, gauze, bandages, etc., are manufactured. C. D. Richmond is president, treasurer and buyer of the new corporation.

*Virginia, Norfolk. The Virginia Glove Mfg. Company, whose organization was recently noted, will make canvas and leather gloves. No knitting machinery will be operated.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Boomer & Boschert

BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint

Any Size Any Power

Boomer & Boschert Press Co.

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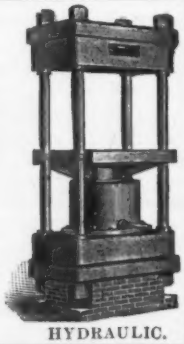

HYDRAULIC.

NEW ENGLAND BUTT COMPANY

304 PEARL STREET, PROVIDENCE, R. I.

BRAIDING MACHINERY

ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS

SOLID SASH AND CURTAIN CORDS

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS

Massachusetts, Salem. Stockholders of the Naumkeag Steam Cotton Company have voted to increase the capital stock by issuing 7,500 new shares, par value $100, making the capital $2,500,000. A permit has been granted the Naumkeag Company for the erection of a new office building on Congress St., at the corner of Lynch St. The cost will be in the neighborhood of $53,000.

Massachusetts, Saundersville. The Saunders Cotton Mills have started up again after a shut down of two weeks. While the plant was closed three new boilers were installed and much repair work was done.

New Hampshire, Salmon Falls. Good progress is being made on the addition to the cotton house of the Salmon Falls Mfg. Company.

*North Carolina, Albermarle. The new No. 5 Mill of the Wiscasset Mills Company will be ready for beginning manufacturing in about two weeks. As noted in previous reports 12,000 spindles with preparatory machinery comprise the equipment.

North Carolina, Burlington. The proposed changes at the E. M. Holt Plaid Mills, currently reported, have not been fully decided upon. The plant has been running overtime and it has been said that the manufacturing space would be increased and new machinery installed, and that also a number of tenement houses for operatives would be built. They manufacture fine ginghams.

North Carolina, Coleridge. Construction work has been completed on the water power department of the Enterprise Mfg. Company, and new water wheels to generate 500 h. p. will be installed.

North Carolina, Concord. An addition is being built to the plant of the Young-Hartsell Mills Company, and some new card room machinery will be installed.

*North Carolina, Edenton. The new 8,000-spindle addition at the Edenton Cotton Mills will be built and equipped before next summer. Plans are being made by C. R. Makepeace & Co., Providence, R. I.

*North Carolina, Franklinville. New equipment will be installed in the addition under construction for the Franklinville Mfg. Company to include 3,000 spindles and 50 looms. They manufacture seamless bags and chain warps.

*North Carolina, Greensboro. Work of installing machinery in the new $1,250,000 additions to the Revolution Cotton Mills will be started soon. A weave shed, 530 by 130 feet, and a yarn mill, 470 by 130 feet, have been constructed, and will be equipped with 40,000 spindles, 1,132 looms, and complementary machinery to manufacture cotton flannels. Electric power will be obtained from the lines of the Southern Power Company at first, but later on the Revolution Mills expect to build an electric power plant. E. Sternberger is president and buyer; H. Sternberger, treasurer, and George P. Stone, superintendent.

RATS AND FIRES

72 Front Street, New York City.

To Mill Owners and Superintendents:

A serious fire was caused last month in a New England textile mill as a result of a rat having knawed off the insulation from two feed cables. Its body got across the mains in such a manner that it became thoroughly carbonized which resulted in a dead short circuit putting the power plant out of commission temporarily as well as causing a fire which might have destroyed the plant. You must be aware that no building is properly fire-proofed unless it is free from rats. We know the habits of rats and we understand how to get rid of them. We will be pleased to contract to keep your premises rid of rats by the use of the wonderful bacteriological preparation known as DANYSZ VIRUS. Write today for our latest booklet. Yours truly,

Department 4 VIRUS LIMITED INC.

JOHN E. KENDRICK, President MYRON FISH, Treasurer M. C. FISH, Secretary

American Supply Co.

Manufacturers of Reeds, Harness, Belting and General Mill Supplies

We make a specialty of Harness for American Warp Drawing-in Machine

OFFICE and STORE—135-137 Washington St., Providence, R. I. FACTORIES—Central Falls, R. I. and Fall River, Mass.

Thread and Silk SPOOLS of any description

Made from one piece, up to 6" long and 3" dia.

We are located in the best white birch region. Our work and prices seem to satisfy the most particular customers. We can give any finish desired. Estimates furnished on samples submitted

E. L. Tebbets Spool Company, Locke's Mills, Maine

SMITH & FURBUSH MACHINE CO.

PHILADELPHIA

Manufacturers of

PICKERS—Lumpers; Rag, Burr, Wool, Cotton, Jute, Fearnaught and Garnett Pickers; also Rag, Carpet and Jute Shredders.

WILLOWS—Continuous Cotton Stock Opening, Cleaning, Metal Extracting and Condensing Outfit; also Square Box and Cone Willows or Dusters

GARNETT MACHINES—For carding cotton and woolen waste clippings, etc.; also for manufacturing cotton, wool and jute batting or felts.

FEEDS—Self feeds for cotton, wool, worsted or jute; also Camel Backs, Biamires and Apperlys.

METALLIC BREASTS—Burring Machines and Self-Stripping Feed Rolls for Cards and Garnett Machines.

RECLAIMING MACHINE—For Opening and Cleaning various kinds of Cotton Mill Waste.

CARDS—Woolen, Worsted, Cotton Waste, Shoddy, Hair, Asbestos and Jute Cards; also Special Cards for the manufacture of Wool Hats.

MULES—Heavy and Durable for Wool and Waste Yarn.

TWISTERS—Plain or Fancy Twisters for Flake, Loop or Bourette Yarn.

BOBBIN WINDERS—Automatic Jack Bobbin Builder and Adjustable Creel for different length spools.

WARPING MACHINERY—Copper Cylinder Warp Dressers with single and double size pans; beamers; Section and Pinless Warp Mills. Creels and Dresser Spoolers for Wool or Worsted.

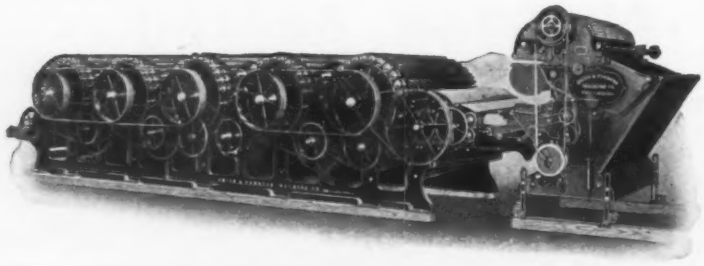
GRINDERS, Etc.—Floor, Traverse and Portable Grinders for Cards, Garnetts or Rag Pickers; also Turning Rests, Fillet Winders, Card Clothing Stretchers and Cleaning Frames.

Special Circulars furnished for each Machine

Felting Machinery for Manufacturing Soft Felts or Commercial Batts, for Mattresses, Comforts, etc from Cotton, Cotton Waste, Linters, Jute, Wool and Wool Waste

A complete line of Machinery for Manufacturing Gunny Bagging from Old Gunny Bagging
Complete Equipment for Manufacturing Mop Yarn and Rope from Cotton Waste

Estimates and complete plans furnished

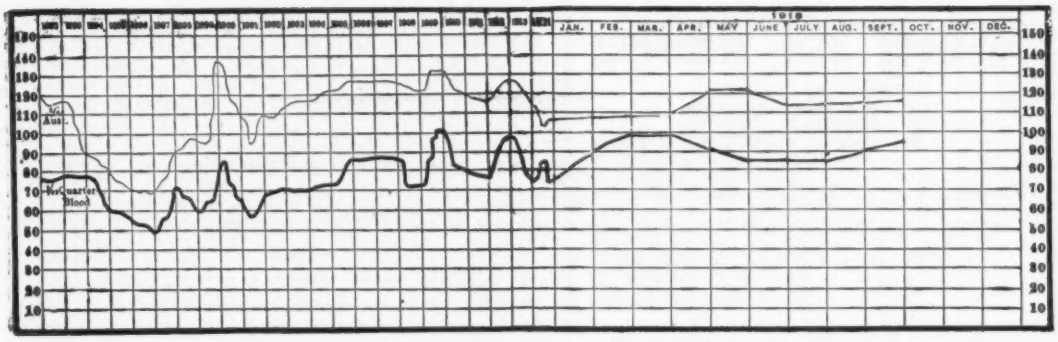


5 Cylinder 30″ Garnett Machine with Automatic Self Feed
Send for Circular R 85

A Garnett Machine of this size will reduce to fibre, hard twisted thread waste, without reducing the length of staple to any extent.

Of course, we build smaller size machines for other kinds of stock. Send us a sample of yours.

Our Automatic Self Feeder has the latest improvements



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

WOOLEN AND WORSTED YARN MARKETS

The between season of the worsted yarn market for the past month has not shown the activity of the 60 days previous. This is accounted for by the weavers already having made their purchases at prices considerably lower than the present asking prices of the spinners and the increased price of raw material. As the spindles of the country are better employed at the present time than they have been for the past three years and the weaving and knitting mills are in a corresponding condition the future of worsted yarns may show a gradual hardening of prices. The published report of the lifting of the embargo on crossbred wools from England has been the subject of considerable gossip throughout the trade. Those manufacturers who are in the market for yarns have been trying to use this as a bear argument to make their purchases on a lower basis than the present asking price of the spinners. The position, however, of the cross bred wools in this country and the corresponding limited supply abroad will have rather a hardening tendency than a weakening one. This will be created by the limited amount of wool England will release. The amount published, about 50,000 bales, will be about 20,000,000 pounds. As Russia, Italy and France will also be a competitor for this limited supply it is hard to see how prices can decline under these conditions.

BRADFORD SPUN YARN

2/12 to 2/16 low common	80-82½
2/20 to 2/24 low 1/4	82½-85
2/20 to 2/25 1/4 blood	85-87½
2/26 to 2/28 1/4 blood	87½-90
2/32 1/4 blood	90-92½
2/20 3/8 blood	92½-95
2/26 3/8 blood	95-97½
2/32 3/8 blood	97½-1.00
2/36 3/8 blood	1.00-1.02½
2/40 1/2 blood	1.07-1.10
2/50	1/17-1.20
2/40 Australian	1/12½-1.15
2/50 Australian	1.22-1.25
2/60 Australian	1.30-1.32½
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

KNITTING YARNS

Bleached—Bradford System

2/7s straight 1/4 blood	97½-1.02½
2 and 3 ply 10s-20s straight 1/4 blood	1.00-1.05
2 and 3 ply 20s-24s straight 1/4 blood	1.01½-1.07½
2 and 3 ply 24s-28s straight 1/4 blood	1.08-1.09

(Reduce 10c. for yarn in oil)

FRENCH SPUN YARN

1/20 1/4 blood	87½-90
1/20 high 1/4	90-92½
1/20 3/8	92½-95
1/20 high 3/8	95-97½
1/20 1/2 blood	97½-1.00
1/30 1/2 blood	1.00-1.02½
1/40 1/2 blood	1.05-1.07½
1/50 delaine	1.10-1.12½
1/40 Australian	1.00-1.02½
1/50 Australian	1.15-.1.20
1/60 Australian	1.20-1.25
1/70 Australian	1.25-1.30

For two ply knitting twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	76
1/30 50/50 White Merino Cop	78
1/40 50/50 White Merino Cop	80
1/20 60/40 White Merino Cop	82
1/30 60/40 White Merino Cop	84
1/40 60/40 White Merino Cop	86
1/20 70/30 White Merino Cop	88
1/30 70/30 White Merino Cop	90
1/40 70/30 White Merino Cop	92
1/20 80/20 White Merino Cop	92

Knitting and Weaving

YARNS

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment

EDWARD S. HYDE
226 CHESTNUT STREET
Philadelphia, Pa.

William Whitman Co.
COMMISSION MERCHANTS
COTTON and WORSTED YARNS
BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

JAMES LEES & SONS CO.
MINERVA MILLS
Spinners of WORSTED YARNS
For Weaving and Knitting
In the Grey and in all colors and mixtures
Philadelphia Office: . . . . 627-29 Bourse Bldg.
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J. B. Jamieson
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COTTON YARNS
of all descriptions
Correspondence Solicited

HAROLD R. SHIRLEY
242 Chestnut St., Philadelphia, Pa.
French Spun Worsted and Merino Yarns
Bradford Spun Yarns
Woolen Yarns
FOR WEAVING AND KNITTING

FREE, A CATALOG of all important textile books sent on request by Lord & Nagle Co., Boston, Mass.

SOAPS — HIGH GRADE Bleaching, Fulling and Scouring SOAPS — Red Oil and Olive Oil Crown Soaps — J. O. Draper Co. Est. 1860 Pawtucket, R. I.

1/30 80/20 White Merino Cop	94
1/40 80/20 White Merino Cop	96
Sliver and Sanitary Mixes	3c. more
Coning on 1/20	2c. more
Coning on 1/30	3c. more
Coning on 1/40	4c. more

THE WOOLEN AND MERINO YARN MARKET

Reports from the spinners of woolen yarns have it that business is good with plenty of orders on hand from both the weavers and knitters. Prices on both raw stock and yarns are advancing, the increase on yarns being from two to five cents per pound. As to the knitting trade they are now making inquiries for yarns, previous to placing contracts, the business orders calling for immediate delivery in lots of five to ten thousand ounds, the orders to run until the first of the coming year, the contracts calling for both all wool and merino yarns in counts from 2/20 to 2/23 cut.

The business from the weaving trade is for yarns for use in the manufacture of poplins for which the spinners are said to be charging in the neighborhood of 92 1/2 cents per pound. The orders are said to be large.

Spinners are complaining about the dye situation which is now becoming worse from day to day. The scarcity of dyestuffs has placed them in the position where they can no longer take orders for dyed yarns and guarantee the price of colors. The result is that all orders for colored yarns are subject to existing conditions and spinners are compelled to make their charges accordingly.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	72½
2/20 Light Grey Mixed	90%	10%	75
2/20 Light Grey All Wool			80
2/20 Colored All Wool			80
2/20 Bleached	80%	20%	75-77½
2/20 Bleached	90%	10%	80-82½
2/20 Bleached All Wool			87½-90
2/23 Colored All Wool			82½-85
2/23 Bleached 90/10			87½-90
2/23 Bleached All Wool			92½
2/25 Light Grey Mixed All Wool			87½-90
2/25 Bleached All Wool			97½-1.00

THE RAG AND SHODDY MARKET

Trade in rags has been quiet since our last report, but prices have been well maintained and buyers have tried in vain to obtain concessions. The holders of stock are convinced that it is a seller's market. As a result they have maintained quotations firmly in spite of the lack of inquiry. Shoddy manufacturers are busy on old contracts, but are not booking new business as freely as was

the case a month ago. It is believed, however, that the improved trade in the woolen mills will result in an increased demand and advanced prices for shoddy. Wool waste is in good demand but stocks are small and prices are unchanged. Cotton waste has advanced in sympathy with the movement in the raw cotton market. We quote as follows:

SHODDIES AND EXTRACTS

White knit	38-40
Red flannel	20-22
Red knit	25-28
Thibelts	21-23
Fine dark merino No. 1	19-20
Fine light merino	29-31
Fine black merino No. 2	15-16
Light delaines	25-26
Mixed delaine	12-13
No. 1 dark worsted	19-20
No. 2 dark worsted	16-17
Black worsted	20-22
Fine dark worsted clips	23-24
Blue serge, old	22-23
New blue clip	20-22
New black fine worsted clip	28-31
Light yarn, fine	30-33
Dark mixed, fine yarn	16-20
Dark blue hosiery clips, No. 1	17-20
Dark blue hosiery clips, No. 2	14-16

NEW WOOLEN RAGS

Fine merchant tailors	16-18
Choice light worsted	23-25
Fine gray worsted	24-25
Coarse gray clips	16½-17
Fine dark worsted	17-19
Black worsted	24-25
Blue worsted	24-25
Brown worsted	19-20
Blue serge	27-28
Black serges	24-25
Light serges	24-25
Dark fancies	13-14
Dark serges	15-16
New blue flannel	20-22
New scarlet flannel	18-20

SOFTS AND KNIT STOCK

Soft woolen, best	11½-12
Red flannel	12
White softs	26-27
Merinos, fine light	20-21
Thibets	14-14½
Knit stock, red	15-15½
Light gray, underwear	11-11½
Coarse gray	17-18
Blue knit	14
Mixed hoods	11
White knit stock	28-30

Manufacturers Want Facts

They must know exactly how many pieces each machine is turning out every day, every hour. They must have these facts at once, if they are going to keep an accurate check upon their production and their costs

Durant Counters

give you the facts on the instant, without any waiting for reports. They're made in thirty different styles, applicable to almost any kind of machines in textile mills. Simple, strong and durable.

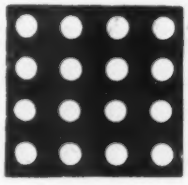
Write for Illustrated Catalog No. 20

Durant Mfg. Co., Milwaukee, Wis.
O. P. HICKS, 30 Church St. New York

Woolen and Merino YARNS

Eaton Rapids Woolen Mills

EATON RAPIDS, MICHIGAN



Perforated Plates for Wool Washing

Rinsing and Carbonizing

In Special Metal

BECKLEY PERFORATING CO.,
Garwood, N. J.

SPOTS

oil, grease and other mill stains quickly and permanently removed by the Sanitex Process. Machines installed in Textile and Knitting Mills, or Spotting done for the trade at reasonable rates.
The Sanitex Co., 33 Union Sq., N. Y., Dept. A.

Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white

LOWELL CRAYON CO. Original Manufacturers **LOWELL, MASS.**

TRADE MARK ON EVERY BOX

OAK TANNED LEATHER BELTING

—AND—

PICKER AND ROLLER COVERING LEATHERS

CHARLES BOND CO., 520 Arch St., Philadelphia

What Do You Want Most in the Silk Yarns You Use?

Of course, you expect evenness, for that is essential. You look for quality as a matter of course.

However important these features are, there are other points that should be given equal consideration.

Suppose there is some special silk that you are very desirous of obtaining, yet cannot buy it in stock. What would you do? In buying

Cheney Silk Yarns

you get more than quality and evenness, you get a service that no other manufacturer can equal.

It makes no difference for what purpose, in what quantity, or in what form you want it, if from our wide variety of yarns there is none that just meets your particular needs, we'll make you up a special order.

This service that Cheney Brothers render their customers has been largely responsible for the almost universal preference for Cheney Silk Yarns.

Let us know your yarn needs. No order is too small for us to handle.

CHENEY BROTHERS
Silk Manufacturers 4th Avenue and 18th Street, New York

National Silk Dyeing Co.

Main Office, PATERSON, NEW JERSEY, 140 Market Street

NEW YORK SALESROOM, 60 UNIVERSITY PLACE

Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

A very active silk market at advanced prices is the condition at this writing. Whether these quotations for the raw product have reached the high point is problematical, many in the trade holding that a recession may take place in the near future. The Japan silk market is strong and active. Many buyers are in Yoklohama and the greater part of the transactions were for this country. Over 1,500 bales were sold in one day.

Owing to heavy arrivals of Japan silk in this country spot silk is not quite so firm. The Canton market is reported firm at the advance. Holders of silk in this market are asking top prices, but it is thought by importers that this condition will not last long.

The Milan market continues strong owing to an improvement in the exchange situation. It is reported that much business is being done in spite of the internal disturbance in the country. In Lyons manufacturers are reported as fairly busy but nowhere near normal.

The broad silk manufactures are quite busy and are extremely optimistic. While buyers of the finished product are cautious, some large orders have been booked. In many cases the dyestuff shortage has caused manufacturers to discontinue some lines, but as yet the situation could not be called critical.

The ribbon manufacturers are not running full owing to the prevailing style, which does not require much of their product. It is hoped, however, that this condition will soon change.

Cotton manufacturers are reported as buying some raw silk, but at the present time the hosiery manufacturers are buying very little, owing to their inability to get a sufficient supply of colors, the shortage of which has become quite acute in some cases.

In the dry goods district the finished product is in a fairly good demand. Satin faced fabrics and bengalines are still favorites, but it is stated that at present the great call is for plaids and striped taffetas. Georgette crepe charmeuse and all soft finished silks retain their popularity. Velvets are having a great run, and are likely to be the leading fabric in the millinery and allied trades the coming winter. Everyone in the silk industry is very optimistic believing that this activity has come to stay.

Below are prices current:

European

Grand Extra Classical Piedmont	4.05-4.10
Extra Classical Italian 12/14 12/16	3.95-4.00
Best Classical Italian 13/15 24/26	3.75-3.80
Classical Italian	3.70-3.75

60 days' basis

VILLA, STEARNS COMPANY

Telephone, 6174 Gramercy
American Woolen Building

221 Fourth Avenue, New York

RAW AND THROWN SILK
Silk on Spools, Cones, Quills, Beams

DYED SILK FOR ALL PURPOSES

Philadelphia Office:
519 Bourse Building

Providence Office:
Howard Building

SAUQUOIT SILK MFG. CO.
INSULATING AND BRAIDING SILKS

ORGANZINE, TRAM AND HOSIERY SILKS
Fast Dye Organzines for Woolen Manufacturers a Specialty

Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa. New York Representative, Wm. Ryle & Co., 225 Fourth Ave.
Philadelphia Office, 4015 Clarissa St., Nicetown
Chicago Office, 206 So. Market St. Boston Office, 78 Chauncy St.

The Memphis Terminal Corporation

Makes a big showing for the fiscal year just ended

The largest cotton terminal and storage warehouse plant in the world located at Memphis, Tenn., the world's largest inland cotton market.

The first mortgage six per cent. bonds secured by this plant make a high grade investment whose safety must be appreciated by Textile men.

Write us for a descriptive circular M and picture of the plant.

MARSHALL & COMPANY, Inc.

Bankers

Seventy State St., - Boston, Mass.

A. P. VILLA & BROS.

YOKOHAMA CANTON SHANGHAI — **NEW YORK** — MILAN TURIN LYONS

95 MADISON AVENUE

RAW, THROWN AND DYED SILKS

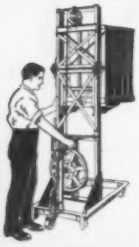
Silk on Quills or Beams

Hosiery Silk on Cones

Telephone 10080 Madison Sq.

Mills: Passaic, N. J.

Economy Steel Tiering Machines



enable one man to lift heavy boxes, bales, barrels and rolls, clear to ceiling's height. Built to operate by hand, electric or pneumatic power. Portable, safe and simple.

New Designs and Improvements

It will pay you to get full information.

ECONOMY ENGINEERING CO.

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Carpet Manufacture.

By FRED BRADBURY.

The only complete work on the subject.

A handsome volume, bound in dark green cloth, gold lettering; over 300 pages; 256 illustrations and 3 colored plates.

Price $3.00, Carriage Prepaid

A reliable book on carpet and rug manufacture that will strongly appeal to the manufacturer and designer. It is written in an easy style, combining text and illustrations in a manner that gives the perfect technical book.

The chapters are: Designing, Color, Brussels Carpets, Wilton Carpets, Tapestry Carpets, Axminster Carpets, Chenille Axminister Carpets, Kidderminster and Scotch or Ingrain Carpets.

LORD & NAGLE CO., Publishers, Boston, Mass.

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FIBRE

Roving Cans
Mill Baskets
Barrels
Boxes

Will neither dent nor break when subjected to hard usage. Stronger than wood, lighter than steel. *Write for Bulletin 12*

DIAMOND STATE FIBRE CO.

Bridgeport, Montgomery Co., Pennsylvania

Branches in Principal Cities

"Marathon"

Oak Tanned Belting
Worsted Aprons

R. H. HOOD COMPANY

1842 Germantown Ave., Philadelphia, Pa.

Japan

Filature Kansai Double Extra Cracks	3.85-3.90
Filature Kansai Extra 13/15	3.70-3.72½
Filature Shinshu Extra 13/15	3.65-3.67½
Filature Kansai Best No. 1	3.55-3.60
Filature Kansai No. 1 13/15	3.50-3.55
Filature Shinshu No. 1 13/15	3.45-3.50
Rereels No. 1 13/16	3.67½
Rereels No. 1 1/2 13/16	3.60
Rereels No. 1 1/2-2	3.55

6 months' basis

China

XXA Crack 14/16	3.20-3.25
Canton XXB Ordinary 14/16	3.10-3.15
Canton XXB 22/26	2.90-2.95
Tsattle Blue Dragon & Flying Horse	2.75-2.80
Tsattle Kun Kee Mars No. 1	2.50-2.55
Tussah Filature 8 Cocoons No. 1-2	1.17½

6 months' basis

SPUN SILK

Manufacturers of spun silk report business never better and orders booked way ahead. It is to be hoped that this condition of affairs will last for some time to come, for the manufacturers of this product have had a long period of dullness and this demand is most welcome.

Prices in the grey remain the same. In dyed yarn prices are in some cases higher, but are not quoted:

60/2	3.60
50/2	3.50
40/2	3.40
30/2	3.25
20/2	3.15
10/2	3.05

ARTIFICIAL SILK

The manufacturers of this product report a much greater demand at the present time, although shipments from the other side are not getting any easier. Braid manufacturers are buying larger quantities than before and the outlook in the trade is most promising.

All quotations available are below:

150 Deniers English A.—Bleached	3.25
150 Deniers English B.—Bleached	3.15
150 Deniers English C.—Bleached	3.05

New York, Chadwick's. A large new weaving mill, with saw tooth roof, is under construction for the Standard Silk Company, manufacturers of broad silks. The main plant is at Philipsburg, N. J.

Pennsylvania, Columbia. Schwarzenbach, Huber, Company have awarded the contract for the erection of a 50,000 gallon steel fire tank to be 125 feet high. The main plant is at West Hoboken, N. J.

SPUN SILK
YARNS FOR ALL PURPOSES
AMERICAN SILK SPINNING CO., PROVIDENCE, R.I.

CASCAMI
SCHAPPE SPUN SILK
CORDONNETS AND NOILS
CASCAMI SILK SPINNING CO. of AMERICA,
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SILK THROWING and WASTE SILK SPINNING Deals with the preparation of Yarn from the Raw Silk. 158 pages; 117 illustrations; cloth. $2.50 prepaid. LORD & NAGLE COMPANY, Boston, Mass

WILLIAM RYLE & CO.,
FOREIGN AND DOMESTIC
SPUN SILK YARNS and NOILS
Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.
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WILLIAM SCHOFIELD CO.
Krams Ave., formerly Church St., Manayunk, Phila., Pa.
Textile Machinery
Makers of Rag, Wool, Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.
Special Machinery Built. General Machinery Repairs.
Relagging Picker Cylinders a Specialty.

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Macungie, Pa.
Bindings and Ribbons
For binding Cotton and Woolen Bed Blankets, Go-cart Covers, Kimonas, Bath Robes, etc.
Special Colors or Shades made to order

LUDWIG LITTAUER

Tram, Thrown Silk, Organzine, Artificial Silk
Domestic and Imported, Plain, Gassed and Mercerized. Polished and Glazed Cotton, Mohair, Worsted and Tinsel.
Best Quality Harness Twine
107-109 Greene St., New York
Silk Throwing Mills, BEACON and YONKERS, N. Y.
YARNS

SILK MILL SUPPLIES
OF EVERY KIND AND DESCRIPTION
Also Power Transmission Supplies for General Mill Use
I. A. HALL & CO.
Paterson, N. J.
Allentown Reed, Harness and Mill Supply Co.
Allentown, Pa.

United States Conditioning & Testing Company
Cotton, Wool and Silk Conditioning
Fabric Testing and Chemical Analyses
Offices and Laboratories, 340-44 Hudson St., (cor. Charlton St.)
NEW YORK
D. E. Douty, Mgr. F. G. Boye, Supt. K. B. Lamb, Chem. Eng.

THE NEW SUBSTITUTE FOR FUSTIC
FUSTINE D
50% stronger than fustic. Used wherever fustic can be used. Better color and faster to light
AND CHEAPER.
We make other specialties.
SIZING SPECIALTIES CO., Inc.
JERSEY CITY, NEW JERSEY

SILK MILL NEWS

*New Jersey, Paterson. Sol. B. Rains will begin manufacturing jersey cloth, silk nets and ladies' underwear at once in the new plant being established at 60 Front St. Mr. Bains was connected for eighteen years with Julius Kayser & Co., Brooklyn, N. Y. He has arranged for 7 knitting looms to be installed at first. Later on the business will be incorporated under the style of the Jersey Silk Fabric Company, and Mr. Rains will be president.

*New Jersey, Paterson. Eighty looms will be installed in the Lynch Mill on George St. during the next few days by J. H. & C. K. Eagle, Inc., to be operated as a branch of the main plant at Shamokin, Pa. John Bentley, of Bentley Bros., will be manager of the local plant, as stated previously, and is quoted as saying that if Messrs. Eagle find conditions satisfactory in Paterson a large plant will be established here. As noted recently a new mill is being built at Kulpmont, Pa.

New Jersey, Paterson. A new commission winding and warping plant is being started at 93 River St., by Jacob Gross and I. Freed. It is to be called the Main Winding & Warping Company.

New York, Northville. L. E. Winnie, who has been manager of the Normandie Silk Mills, Inc., at Gloversville, N. Y., heads a new company recently incorporated with capital stock of $125,000 under the name of the Labelle-American Silk Mills, to manufacture silk knitted cloth, gloves and mittens. George C. Miller, of Gloversville, is also interested in the project.

*Pennsylvania, Kulpmont. Contract for the erection of the new silk mill of J. H. & C. K. Eagle, Inc., has been awarded and preliminary work has been started. The mill will be 5 stories high, of steel and brick, 60 by 238 feet. As noted a week ago the equipment will include 250 looms. The main plant of J. H. & C. K. Eagle, Inc., is at Shamokin.

*Pennsylvania, Quakertown. The new silk throwing plant reported by us to be started in this town by R. G. Williams, in the mill building formerly occupied by the Quakertown Knitting Mills Co., will be operated, it is said, under the name of the Richland Silk Throwing Company, Inc., and a charter for the new company will be applied for at once. As noted in another part of this issue the knitting machinery is to form part of the equipment of a new plant to be started here.

*Massachusetts, Holyoke. Tenants in the block adjoining the mill of William Skinner & Sons, on Bond St., have been notified to vacate the premises by the first of October. An addition is to be built to the Skinner silk mills.

New Jersey, Paterson. The Belmont Silk Company will increase its plant, according to report. Satins and taffetas are manufactured on 56 looms in the Todd Mill.

New Jersey, Paterson. Four more looms have been added to the Century Silk Company, 112 Straight St. They now have 20 looms.

Pennsylvania, Elysburg. The Perfect Silk Throwing Company, which came here from Shamokin several months ago, is adding some additional machinery. The mill has been working day and night throughout the summer. C. H. Knepka, the head of the concern, has not given up the idea of establishing a branch plant and is negotiating with the citizens of Duncannon for a site and financial support.

Pennsylvania, Hawley. A new water wheel has been installed in the local mills of Dexter, Lambert & Co., to replace an old wheel which broke down. The plant is running again as usual.

Pennsylvania, Kutztown. A new 3-story brick mill, 50 by 60 feet, is to be built here by D. G. Dery as an addition to his dress and lining silk plant. This new mill will probably be finished by the end of the year and on its completion the present mill will be remodeled and equipped. The main office of D. J. Dery is at Allentown.

Connecticut, Willimantic. Repairs are being made in the power department of the silk throwing plant of A. G. Turner Company, preparatory to starting up. There is a quantity of silk on hand to be worked up, and although operations will start with a small number of hands more machinery will be started as the business warrants until all the equipment is running. This concern was reported several months ago to be seeking a new location where there were better labor conditions, and they are still open to negotiate for a more favorable location.

*Pennsylvania, Benton. It is expected the new Harbred Silk Company will begin manufacturing early in October with about 50 hands. The company's organization was noted several weeks ago. M. S. Bredhenner is treasurer.

*Pennsylvania, Weatherly. Manufacturing will be started next week by the Weatherly Broad Silk Company, a new concern which has leased the plant of the Onoko Silk Company here, consisting of 66 looms. The new concern intends to manufacture crepe silks exclusively, and to sell in the raw direct to jobbers. Orders are in hand that will keep the plant in operation for six months. James A. Malone, formerly superintendent of the D. G. Dery mills at Scranton and Mauch Chunk, is president, and Charles A. McGowan, formerly warper and winding foreman at Mauch Chunk, is treasurer and buyer. Mr. McGowan has previously been in the general merchandise business at Philipsburg, N. J.

MINDLIN & ROSENMAN Importers and Manufacturers of
Artificial Silk, Mercerized and Cotton Yarns
Raw, Thrown and Dyed Silk for the Knitting Trade
Silk on Spools, Cones, Tubes and Quills. *HOSIERY SILKS A SPECIALTY*
105-107 East 29th St., near 4th Ave., New York Mills and Dye Works, **Long Island City**

You Save Enough Insurance to Pay for the Equipment
So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.
Pettes & Randall Co., 150 Nassau St., New York

The Bradley Stencil Machine
Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.
In universal use by thousands of manufacturers and shippers.

Also manufacturers of **Oil** Stencil Board. Write for prices and samples.
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New York, U.S.A.

OSCAR HEINEMAN CO.
MANUFACTURERS OF
Dependable Thrown Silks
2701-2745 Armitage Avenue
CHICAGO

F. C. BARTON
65 Worth Street, New York
MANUFACTURERS OF
"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

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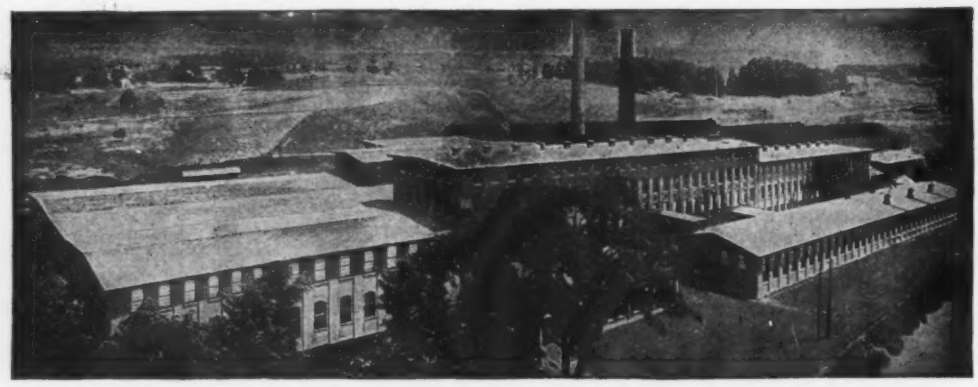
F. C. BARTON, President
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.



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Sheetings, Shirtings, Lawns, India Linons.
Everything in White Goods.
Capacity, 30 Tons Daily

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BLEACHERS!

Without colors
you can't dye; but you can bleach.

Don't start or continue bleaching with old unsatisfactory methods if you know that competitors are throwing out these methods and putting in Peroxide bleaching

Fifteen years' experience makes us competent practical advisers.

Our advice is free to you.

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NEW YORK

FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Elbridge G. Snow, President

Organized 1853 MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $6,000,000

ASSETS, January 1, 1915 ..... $35,313,539.27
LIABILITIES (Except Capital) 16,610,065.11
SURPLUS AS REGARDS POLICY HOLDERS... 18,703,474 16

Losses Paid Since Organization over 156,000,000.00

INDEMNITY
For Loss of
Profits
Commissions
Use and
Occupancy
on acceptable
Protected Plants
at the
Minimum Rate

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

OWNERS OR TENANTS may have for the asking proper advices in relation to the FIRE HAZARD and the Value of Automatic Sprinkler and other protection for the manufacturing or distributing plant. Correspondence invited by the

DEPARTMENT OF IMPROVED RISKS
56 CEDAR STREET, N. Y.

DYESTUFFS AND CHEMICALS

The unsettled conditions in the dyestuff and chemical trades caused by the European situation make it impossible to get quotations which would be of any value to our readers. The dyestuff and chemical list of quotations will therefore be omitted until this trade is again on a normal basis.

FIRES.

Massachusetts, Fall River. Considerable loss, principally by water, resulted from a fire in the mule spinning room on the fifth floor of No. 1 Mill of the Wampanoag Mills. Water from the automatic sprinklers and from the lines of the firemen worked down through the floors and caused extensive damage.

Rhode Island, Woonsocket. A fire in the plant of the River Spinning Company was confined to a drying machine and the loss will not exceed a few hundred dollars.

Rhode Island, Central Falls. A small fire in the plant of the Blackstone Stocking Company was extinguished by the sprinkler system with loss not exceeding $100, chiefly by water.

MILL NEWS.

New Jersey, Hoboken. The Progressive Silk Finishing Company has purchased the 3-story factory building, 35 by 100 feet, at the southwest corner of Clinton Ave. and 7th Ave. A concern known as the Progressive Silk Finishing Company carries on a business of finishing silk goods at 50 Ryle Ave., Paterson.

New Jersey, Jersey City. The Seydel Mfg. Company, manufacturers of chemicals for the textile trade, are entering the aniline dyestuff field and expect to have an initial output of about 3,000 pounds of aniline oil per day. Part of this production will be sold to manufacturers and part of it will probably be further manufactured into aniline colors. Extensive building operations have been started and they contemplate erecting another plant nearby. The dyeing department will come under the management of Herman Seydel, who has had practical experience in the manufacture of dyes in Belgium, also further experience with his connection with Kalle & Company of Bierich A/m Rhine and with their American office in this country. Mr. Seydel was connected with the Berlin Aniline Works for a number of years as their Southern agent and therefore has a practical knowledge of the market. He will have the assistance of his brother, Paul Seydel, who graduated as Doctor of Sciences at the University of Brussels.

*New Jersey, Jersey City. It is unlikely that any increases will be made in the plants of William Stickel & Company as a result of the recent incorporation of the business. They manufacture embroideries.

New Jersey, Paterson. The business of Abbott & Kohn, manufacturers of silk ribbons at 235 Ellison St., has been incorporated with capital stock of $50,000.

Barrett Specification Roofs
AMERICAN TYPE FOUNDERS CO.,
JERSEY CITY, N. J.
Architect: J. T. Rowland, Jersey City.
Contractors: M. T. Connelly Contracting Company, Jersey City, N. J.
W. L. Crow Construction Co., N. Y.
Roofers: Commonwealth Roofing Co., Jersey City, N. J.

On thousands of American factories—

This photograph shows a typical American factory.

It is an excellent example of a well-built modern plant and is similar to thousands of others dotted all over the United States.

It is covered with a Barrett Specification Roof.

The same could probably be said of a large majority of the other plants referred to, because a Barrett Specification Roof is the standard construction for permanent buildings of all kinds.

A Barrett Specification Roof is the cheapest, permanent roofing made and it costs nothing to maintain.

It will last without any attention for twenty years or more. The unit cost accordingly is less than ¼ of a cent per foot per year of service.

These roofs take the base rate of insurance and are approved by the Underwriters' Laboratories.

Copy of The Barrett Specification will be sent free on request. Address our nearest office.

Special Note We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding. If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified and subject to the inspection requirement.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh
Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle Peoria
The PATERSON MFG. CO., Limited; Montreal Toronto Winnipeg Vancouver
St. John, N. B. Halifax, N. S. Sydney, N. S.

TRADE B MARK

MILL STOCKS

	Par Value.	Bid.	Asked.
American Linen	100	...	...
Arkwright Mfg. Co.	100	56	65
Barnaby	100	...	40
Barnard Mfg. Co.	100	35	...
Border City Mfg. Co.	100	105	...
Bourne Mills	100	100	...
Chace Mills	100	100	102½
Charlton Mills	100	92	...
Conanicut Mills	100	...	95
Cornell Mills	100	150	...
Davis Mills	100	107½	111
Davol Mills	100	90	...
Flint Mills	100	97	...
Granite Mills	100	75	...
Hargraves Mills	100	...	43
King Philip Mills	100	107	...
Laurel Lake Mfg. Co.	100	...	100
Lincoln Mfg. Co.	100	75	...
Luther Mfg. Co.	100	118	...
Merchants' Mfg. Co.	100	77½	82½
Mechanics' Mills	100	77	80
Narragansett Mills	100	...	92½
Osborn Mills	100	...	97
Parker Mills	100	40	...
Pilgrim Mill, pfd.	100	...	95
Pocasset Mfg. Co.	100	...	95
R. Borden Mfg. Co.	100	...	140
Sagamore Mfg. Co.	100	175	190
Seaconnet Mills	100	...	55
Shove Mills	100	70	75
Stafford Mills	100	67	72½
Stevens Mfg. Co.	100	123	...
Tecumseh Mills	100	105	...
Troy C. & W. Mfg. Co.	500	...	...
Union Cotton Mills	100	170	...
Wampanoag Mills	100	...	70
Weetamoe Mills	100	...	80

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	157½	...
Beacon Mfg. Co., com.	102	...
Beacon Mfg. Co., pfd.	112½	...
Booth Mfg. Co., com.	30	...
Booth Mfg. Co., pfd.	...	95
Bristol Mfg. Co.	77	80
Butler Mfg. Co.	...	75
Butler Mfg. Co., pfd.	...	100
City Mfg. Co.	82	...
Dartmouth Mfg., com.	165	...
Dartmouth Mfg., pfd.	102	...
Gosnold, pfd.	...	90
Grinnell Mfg. Co.	125	...
Hathaway Mfg. Co.	200	...
Holmes Mfg. Co., com.	135	...
Holmes Mfg. Co., pfd.	...	115
Kilburn	125	...
Manomet	120	...
Nashawena	77	80
N. B. Cotton Mills, com.	100	...
N. B. Cotton Mills, pfd.	...	99
Neild Mill	...	115
Nonquitt Spinning Co.	87½	...
Page Mill	73	...
Pierce Mill	305	...
Pierce Bros., Ltd.	100	...
Potomska	*115	...
Quissett Mills, com.	...	126
Quissett Mills, pfd.	112	114
Sharp Mfg. Co., com.	92½	...
Sharp Mfg. Co., pfd.	...	105
Soule Mills	...	82½
Taber Mills	102	...
Wamsutta Mills	116	118½
Whitman Mills	...	132

* Ex dividend.

FALL RIVER MILLS

	Bid.	Asked.
American Linen	53½	56
Arkwright	...	65
Barnard Mfg.	35	...
Border City Mfg.	105	...
Chace	102½	104
Charlton	95	...
Cornell	135	...
Davol	90	95
Davis	...	...
Flint	97	102½
Hargraves	...	43
King Philip	108	...
Laurel Lake	...	100
Luther Mfg.	120	...
Merchants Mfg.	77½	82½
Mechanics	78	...
Narragansett	...	92½
Osborn	94	97
Pocasset Mfg.	...	90
Richard Borden	...	140
Sagamore Mfg.	175	...
Seaconnet	...	55
Shove	...	75
Stafford	...	72½
Stevens Mfg.	125	...
Tecumseh	105	...
Union Cotton	...	175
Wampanoag	...	70
Weetamoe	...	80

SOUTHERN MILLS

	Bid.	Asked.
American Spinning Co.	155	...
American Spinning Co., pfd.	100	...
Arkwright Mills	...	100
Avondale	120	126

MILL SECURITIES
Correspondence Invited
MORTON LACHENBRUCH & CO.
SPECIALISTS
34 Pine Street, New York City. Telephone John 3860

Arlington	130	140
Brookside	...	...
Cannon	150	...
Carbarrus	115	...
Chadwick-Hoskins	...	...
Chadwick-Hoskins, pfd.	...	100
Clara	100	...
Cliffside	175	...
Columbus Manufacturing Co.	94	100
Darlington	...	83½
Erwin, pfd.	...	101
Easley	...	175
Florence	125	130
Gibson, com.	...	105
Grendle	...	96
Glenwood	...	150
Glen Lowry, pfd.	...	76
Highland Park	151	200
Highland Park, pfd.	...	100
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	125
Kesler	150	160
Loray Mills, pfd.	...	85
Modena	...	96
Monarch, S. C.	115	...
Newberry	125	...
Norris Mills	...	121
Ninety-Six	130	140
Orr	...	36
Ozark	100	110
Pacolet Mfg. Co., pfd.	100	...

Pennsylvania, Philadelphia. Jere Emery, recently reported by us as starting a small plant for the manufacture of worsted fabrics in the Ford Mill, Frankford, has removed his equipment to the building at 1,645 N. 10th St.,, where he has taken over the third floor and is now installing his equipment of six broad looms.

Pennsylvania, Philadelphia. Contrary to reports by local publications to the effect that the Quaker Robe Company, with a capital of $50,000, recently incorporated for the manufacture of knitted and woven fabrics in cotton, silk and wool, would start up a plant in this city for the manufacture of these fabrics, H. K. Duffus, one of the incorporators connected with Clarence Whitman & Co., dealers in cotton goods at 929 Chestnut St., states that the company will buy piece goods which they will cut up and make up into garments, and not manufacture fabrics.

Pennsylvania, Philadelphia. The American Textile Works, 821 Cherry St., where they operated a line of machinery for the manufacture of imitation furs and finished plushes, etc., with Fred. H. Walker as proprietor, have gone out of business. The equipment of the plant has been sold to other parties and the quarters vacated.

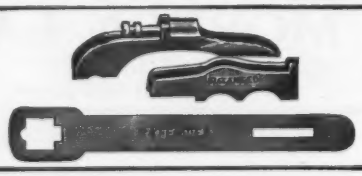
Pennsylvania, Stroudsburg. An overtime schedule of four nights a week has been in force at the plant of Thomas Kitson & Son, Inc.. manufacturers of woolen goods.

BACKFILLER
NATURE'S MOST BEAUTIFUL WHITE
Opaqueness. Weight. Thoroughly Penetrates the Warp. Strengthens Goods.
SEND FOR SAMPLE
INTERNATIONAL PULP CO., - 41 Park Row, New York City

ASHWORTH BROS.,
—MANUFACTURERS OF—
Card Clothing of Every Description
FALL RIVER, MASS.

B C
TRADE MARK
BARBER-COLMAN COMPANY
MAIN OFFICE AND FACTORY
ROCKFORD ILL
BOSTON MASS. GREENVILLE S C.
HAND KNOTTERS AND WARP TYING MACHINES

DIXON PATENT STIRRUP ADJUSTING SADDLE
1,200,000 pairs now in use
Best Saddle for Top Rolls of Spinning Frames
Send for Samples
DIXON LUBRICATING SADDLE CO., Bristol, R. I.
Manufacturers of all kinds of Saddles, Stirrups and Levers



Massachusetts, Blackinton. It is reported that plans are being considered by the Blackinton Company, manufacturers of woolens and worsteds for men's wear, for adding to their equipment in order to take care of the increasing business. The concern states that this is merely a report.

Massachusetts, Clinton. A new boiler has been installed by the Earnsdale Worsted Company to replace the old boiler which has been in use for some time.

*Massachusetts, Clinton. The Flynt Construction Company has a force of men at work putting in the cement foundation for the new mill of the Bigelow-Hartford Carpet Company to be built between mills No. 2 and 3. The new structure will be 119 feet long and 141 feet wide, 3 stories high. The brick walls of the old power plant have been torn down and it is probable some of the bricks will be cleaned and used in the construction of the new building.

Massachusetts, Franklin. Plans are being made for an addition, 100 feet in length, to the mill of the Clark-Cutler-McDermott Co., manufacturers of horse blankets. The new addition will be used for manufacturing and storage purposes and it is probable there will be some increase in the present equipment which consists of 3 sets of cards and 5 needle looms. R. A. Cook, of Milford, is the architect. William Cutler is the president of the Clark-Cutler-McDermott Co.; Walter A. Clark, treasurer and buyer, and Thomas S. McDermott, superintendent.

Massachusets, Lowell. A permit has been granted the Lyon Carpet Company to build an addition, 33 by 60 feet, 2 stories high. Machinery formerly operated by the Read Carpet Company at Bridgeport, Conn., will be installed on the completion of the new space.

Massachusetts, South Royalston. Extensive repairs are being made about the Royalston Mill of the American Woolen Company.

*Massachusetts, Uxbridge. Piece dyeing equipment will be installed in the addition being built to the dyehouse of the Uxbridge Worsted Company. The enlargement will be 48 by 50 feet, of brick mill construction, 1-story high, and will be completed in six weeks. C. A. Root is manager.

New Jersey, Garfield. Construction work has been started on a new building for storage and finishing department purposes for the Forstmann & Huffmann Company. The building will be 4 stories and basement, 64 by 198 feet, of regular mill construction. Construction work is being done by John W. Ferguson Co., building contractors of Paterson, who also have the contract to build an enlargement to the main plant in Passaic, as noted in another part of this issue.

New Jersey, Passaic. Fortmann & Huffmann Company have just awarded contract to the John W. Ferguson Company, Paterson contractors, for the erection of a new building at the main plant in Passaic, to be 5 stories high, 54 by 280 feet. The interior construction will be of reinforced concrete, with brick and limestone walls and architectural terra cotta front.

Interruption of Production

is recognized by textile mill operators as the most costly element of repairs.

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MILL NEWS

*New York, Farmingdale. Albert F. Mundorff, previously reported interested in securing a site here for a new silk mill, is selling agent for broad silks at 254 4th Ave., New York City. Mr. Mundorff states that he has not decided on a location as yet for the silk mill which he is about to start. Recently he was reported to be considering a location at Bay Shore.

New York, New York City. R. D. Whitmore Company, dealers in cotton and worsted yarns, have moved into their new quarters at 121-123 E. 24th St., just off 4th Ave., where they have 5,000 square feet of floor space. They represent three German and two English mills, as well as domestic spinners, and have their own facilities for converting cotton yarns. They are interested in quilling machinery.

New York, New York City. A company has been incorporated under the style of L. Tweel & Co., Inc., to manufacture embroideries, laces, etc. The incorporators are S. Elias, Salim Mallouk, and Louis Tweel, of Brooklyn.

New York, New York City. The Massachusetts Thread Mills have moved to 57 W. 19th St. where they have leased 10,000 square feet of floor space. The facilities for manufacturing cotton and mercerized threads are being greatly increased.

New York, New York City. Ben Bangser, dealing in "Quaker Silk Mills" broad silks, has moved to 2 W. 33rd St.

New York, New York City. The Peerless Examinging, Shrinking & Refinishing Works have been incorporated with capital stock of $10,000 by N. Gorn, F. Silverman and H. Jacobs, 954 Eastern Parkway, Brooklyn.

North Carolina, Maiden. Stockholders of the Providence Cotton Mills have voted to dissolve the corporation and the plant and business will be merged with the Maiden Cotton Mills.

*Oklahoma, Sand Springs. T. H. Steffens, Industrial Agent for the Sand Springs Railway Company, Tulsa, Okla., states that it is too early to give details of the project to establish a cotton mill at Sand Springs. Charles Page, of Tulsa, and associates, are interested.

*Pennsylvania, Clifton Heights. Reports that the mill buildings and other property in Heyville, along the Darby Creek, have been sold by the Moses Hey Estate to a syndicate who will use the property for manufacturing, are incorrect. A number of people have looked over the property but up to the present there has been nothing definitely done toward taking it over. The property is a desirable one, consisting of about 50 acres, lying on both sides of Darby Creek. There are three good stone mills on the property, which at small expense could be put in good order, also a number of dwelling houses for employes. This property enjoys a most valuable water right at the head of Darby Creek. There are no mills above it and the water is clear and pure for any purpose that might be required.

FACTS AND GOSSIP.

Alabama, Birmingham. The new benzol plant of the Tennessee Coal, Iron & Railroad Company will be opened at Fairfield on October 1. This plant has been erected at a cost of about $750,000 and has a capacity of 13,000 gallons of benzol.

Alabama, Mobile. The O. K. Knitting Mills, formerly of 300 Chartres St., New Orleans, have moved their plant to 261 St. Michael St., Mobile. Sweaters are manufactured on 25 knitting machines.

California, Inglewood. Negotiations have been going on for some time for the establishment of a cotton mill at Inglewood, Los Angeles County. According to report several acres just below Inglewood may be purchased and a mill erected to use Imperial Valley cotton.

*Canada, British Columbia, Vancouver. The new Universal Knitting Company, which began operations at 624 Smythe St. in August, making sweaters and fancy knit goods, has capital stock of $25,000 and has equipment of 12 knitting and 6 sewing machines. A. C. Cohen is buyer.

Canada, Ontario, Elmira. A plant for manufacturing felt and felt footwear is operated here under the name of the Great West Felt Company, Ltd. Three sets of cards are operated. The concern has capital stock of $200,000. M. L. Weber is president, and O. H. Vogt is treasurer and buyer.

Canada, Ontario, St. Mary's. William Weir has purchased the mill property formerly occupied by the old Brown Milling Company and, according to report, will convert it into a knitting mill.

Connecticut, Bristol. Reports that the Bristol Mfg. Company will build a new 6-story mill, are denied by the concern.

Connecticut, Stamford. The Phenol & Aniline Dye Company has been incorporated with capital stock of $5,000.

Indiana, Gary. The new $1,000,000 benzol plant of the United States Steel Corporation will be in operation in a few weeks.

Indiana, South Bend. An increase has been made in the capital stock of the South Bend Woolen Mfg. Company from $200,000 to $400,000 and the board of directors has been increased from three to nine members.

*Kentucky, Danville. A free site has been offered the promoters of the new hosiery mill project, also exemption from taxation for a period of five years and free water. Cheap electric power is also available. It is planned to manufacture men's cotton hosiery and if a sufficient amount is subscribed to begin manufacturing about January 1. C. C. Bagby and Nelson D. Rodes are interested.

Kentucky, Somerset. Browne Cornelison, of Oklahoma City, Okla., is interested in a plan to move a knitting plant from Oklahoma City to Somerset and has secured the interest of O. L. Conyers, chairman of the New Industries Committee of the Somerset Board of Commerce.

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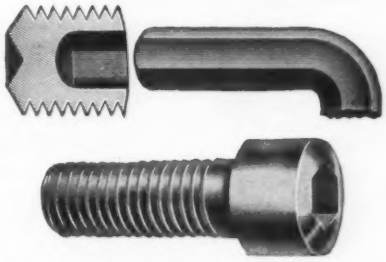

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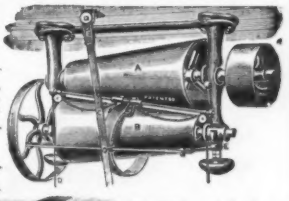

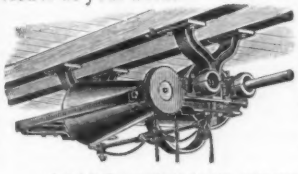

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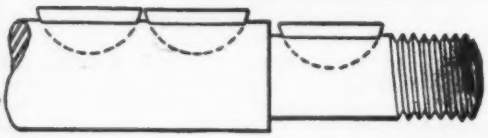

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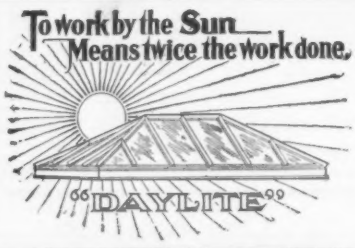

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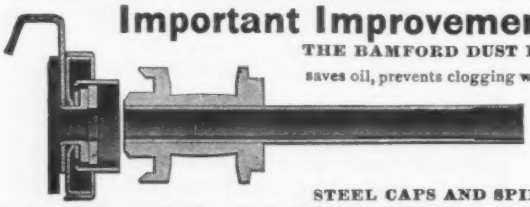

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Maine, North Berwick. The North Berwick Company is very busy on a large order for goods which it is understood will be exported.

Maine, Waterville. The Wyandotte Worsted Company is operating the old Chase Mill night and day.

*Maryland, Reistertown. The Oakland Mill, recently purchased by John C. Melville and started up on overcoatings, is being operated by Mr. Melville and William H. Duval, under the name of the Melville Woolen Company. A plant is also operated at Brucetown, Va.

*Massachusetts, Amesbury. According to a local report mills Nos. 1 and 2 of the old cotton mill and the storehouse on High St., may be taken over by a textile manufacturing concern and equipped with 20,000 spindles. The interests mentioned in connection with this project are associated with a tire concern which would use the output of the cotton mill in the manufacture of tires. No information could be secured at the office of the Merrimack Valley Power & Bldg. Company, 68 Devonshire St., Boston, which controls the old cotton mill property, the person in charge of the matter being absent.

*Massachusetts, Fall River. At a special meeting of the stockholders of the Barnaby Mfg. Company the action of the Board of Directors in giving the creditors' committee full power to adopt any measure that the creditors' committee decide will be for the best interest of all concerned, was ratified. A majority of the stock was represented.

*Massachusetts, Gleasondale. The new Gleasondale Woolen Mills, reported incorporated early in July with capital stock of $100,000, has succeeded to the woolen manufacturing business formerly conducted by the late A. D. Gleason. Nathaniel Stevens has been elected president of the new corporation and Charles E. Roberts, who has been manager, will add to his present position the duties of treasurer of the corporation.

Massachusetts, Jefferson. Another large order for blankets to be exported has been received by the Jefferson Mfg. Company and the mill is running overtime every night.

Massachusetts, Lowell. It is rumored that the Hamilton Mfg. Company will add machinery in the near future and utilize a part of the plant that is lying idle, also that some new construction work is under contemplation.

*Massachusetts, Lynn. There has been a revival of interest in the projected Lynn cotton mill and some local reports go so far as to state that construction work will be started at once on a plant to contain 50,000 spindles and 1,000 automatic looms to make cotton goods. Plans were made some time ago for a 4-story main building, a storehouse and power plant by Harry L. Gilman and William A. Armes, architects and engineers at 8 Congress St., Boston. The Advance News learns from a source which has proved reliable that there is no immediate prospect of work being started on buildings or of the company being organized at the present, although according to this source of information the mill will probably be built eventually.

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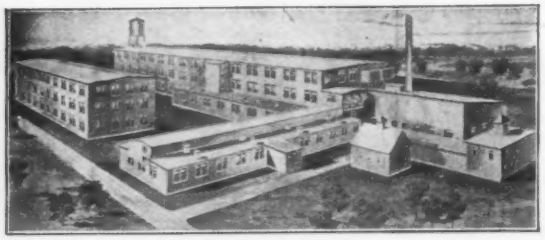

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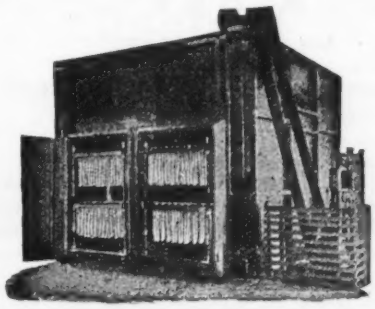

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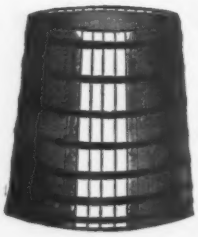

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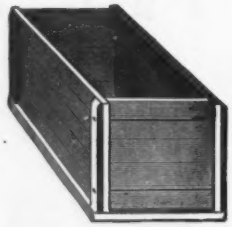

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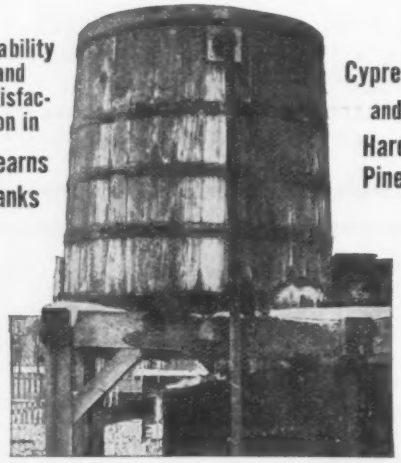

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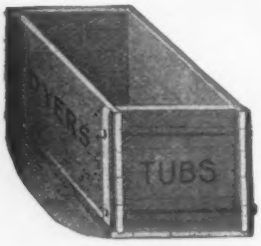

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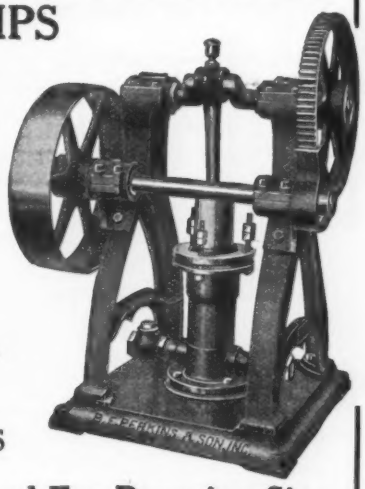
For WARP SIZING in Mills and FINISHING WORKS



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their simple construction gives a direct free passage that reduces the resistance in handling viscous liquids.

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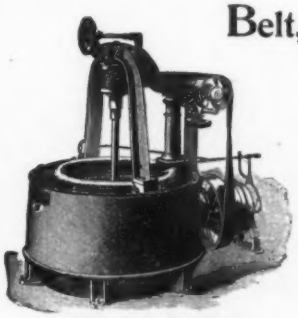

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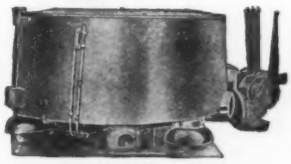

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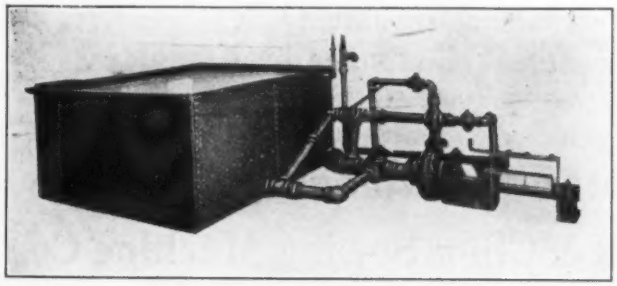

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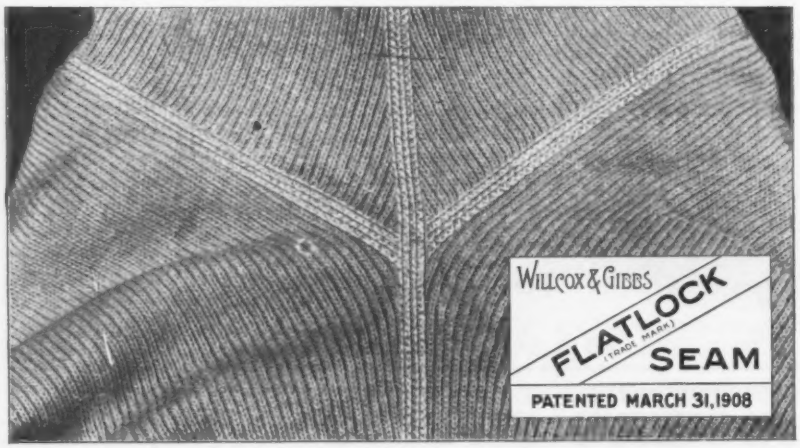

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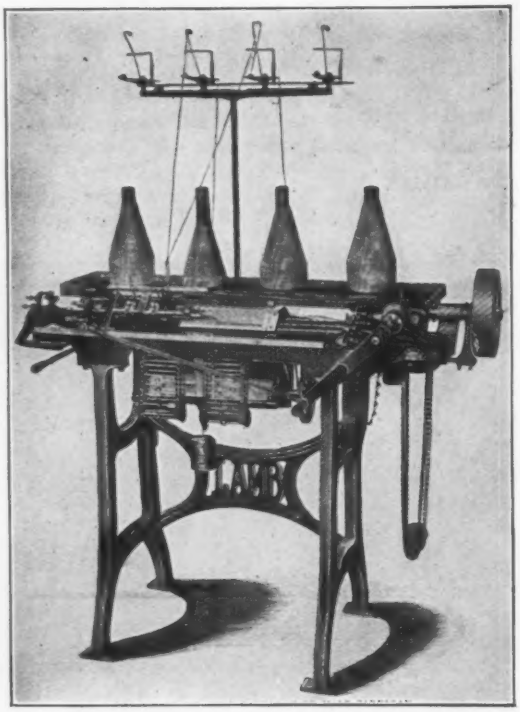

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Banner Full Automatic Hosiery Machine

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Machines
in
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Average
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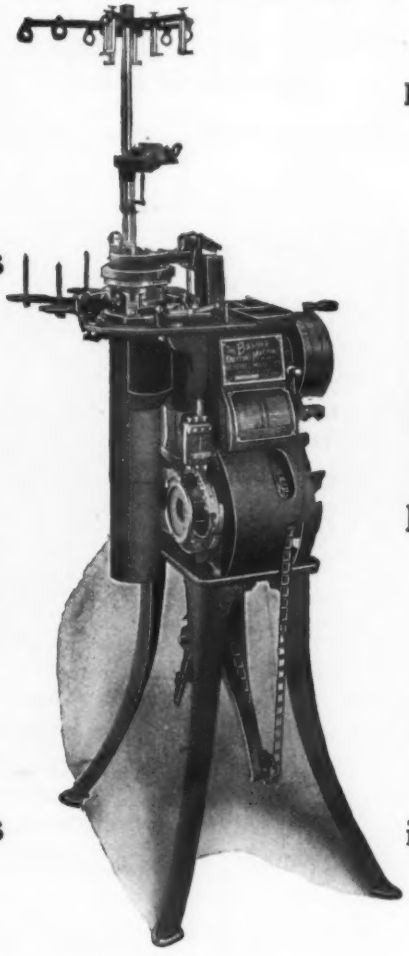
100 machines
a week



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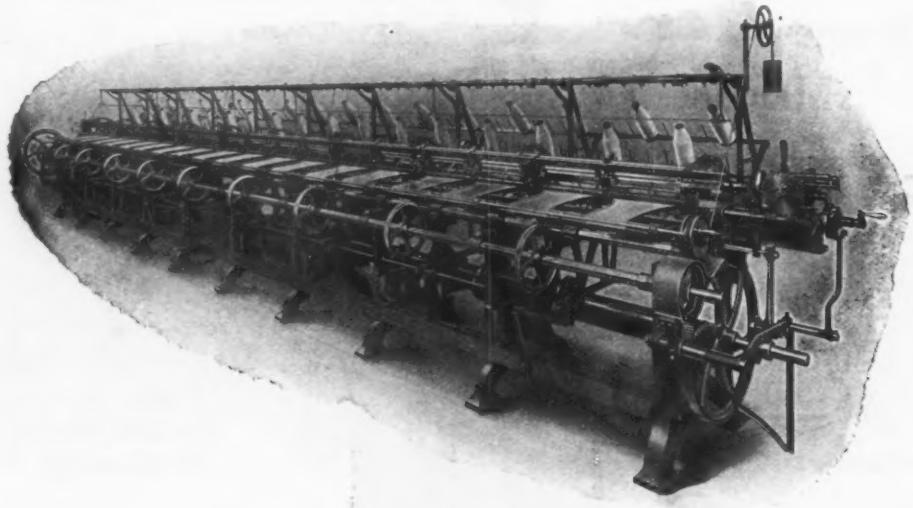

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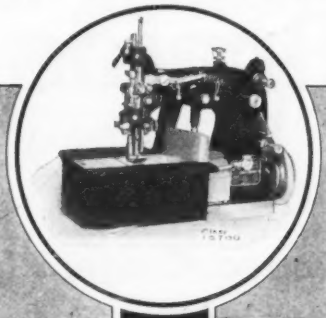

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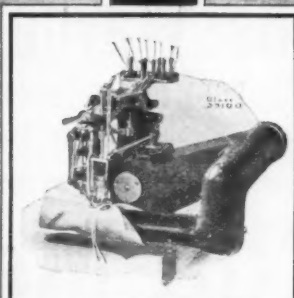

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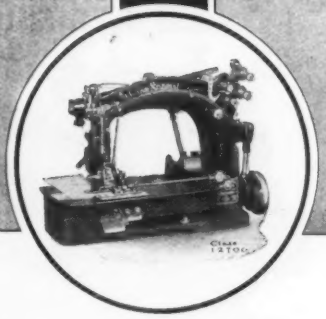

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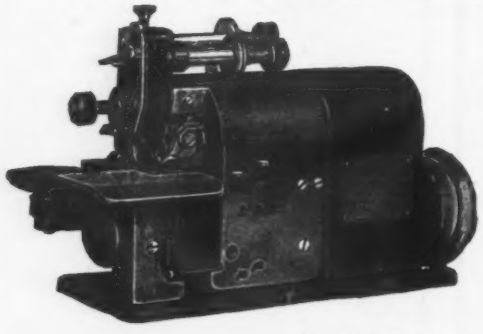

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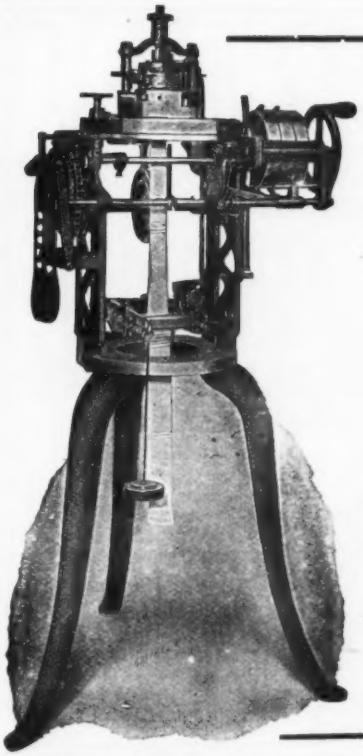

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HOSIERY RIBBERS

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BODY MACHINES, SLEEVERS, etc.

for Underwear, Sweaters, Toques, etc.

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for making all kinds of tubular knitted scarfs.
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Sweater Coat Machines

Automatic Racking Machines with or without striping attachments.
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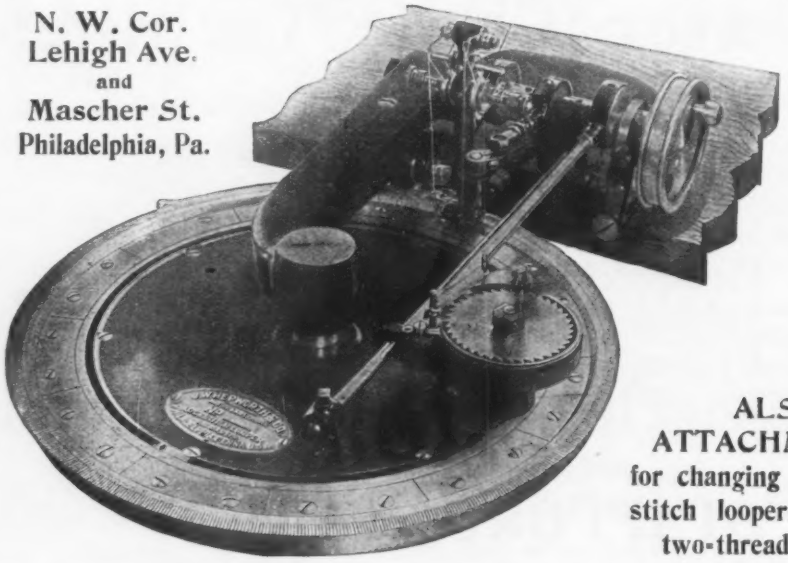

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Two
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Elastic
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Stitch
Loopers

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for changing our single stitch loopers into the two-thread loopers

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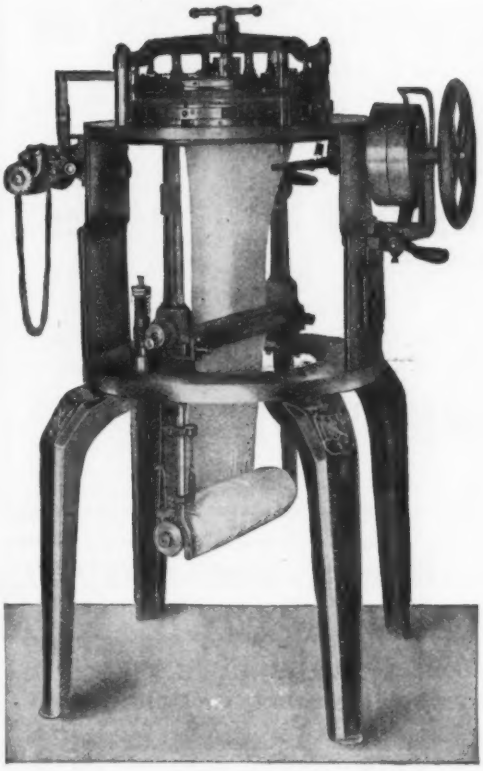

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For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production
UNEXCELLED

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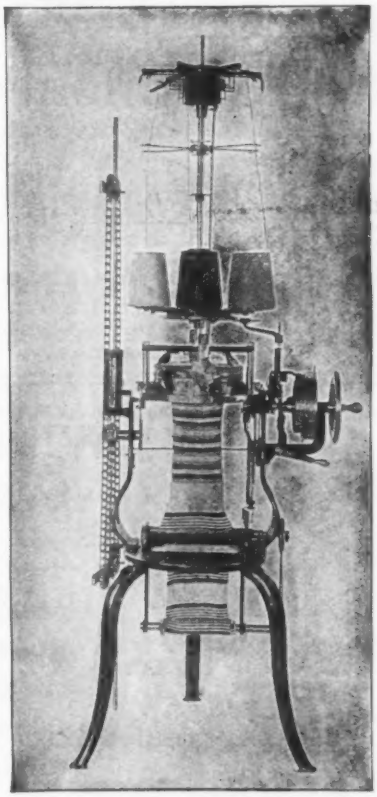
Spring and Latch Needle Machines
for both Rib and Plain Work
Economically Producing
A GREAT VARIETY OF FABRICS



IMPROVED AUTOMATIC 3-COLORED PLAIN STRIPER

Made in sizes from 7½" to 14½" inclusive, of any desired gauge; these measurements being back to back of cylinder needles.

The fabrics from this machine are used for bathing suits, theatrical and athletic goods.

These machines are second to none in the market.

The Crawford stop-motion is applied when requested.

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Patent removable hardened Wing Burr Wheels.

Patent Thread Stop Motion can be fitted to 20 in. and 32 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.

Our flat machine is adapted for knitting collarettes.

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"Dubied" Flat Knitting Machines

For the sweater, etc. trade

BUILT BY

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AND

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"Cotton System"

BUILT BY

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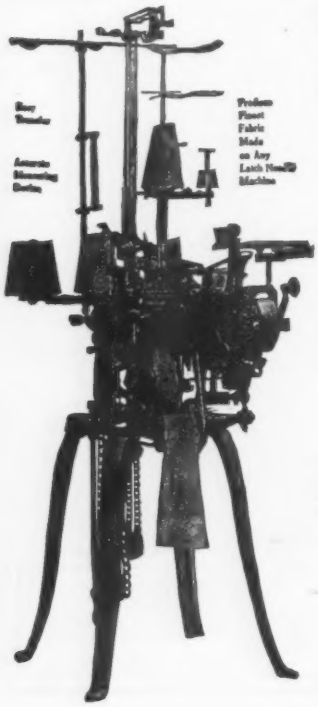
Your inquiry will receive prompt attention



What Knitters are Saying About the "P.&O." Machine

"We are running this machine beside another popular knitter on silk and art silk plaited hosiery. On the 'P.&O.' machine we are making less menders, a more even fabric and bigger production. In fact it is the best machine we have in our mill."

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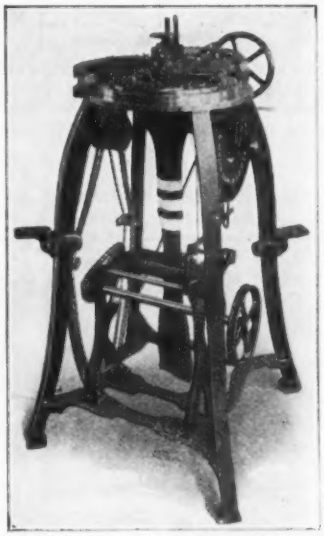

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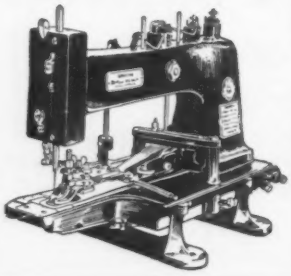

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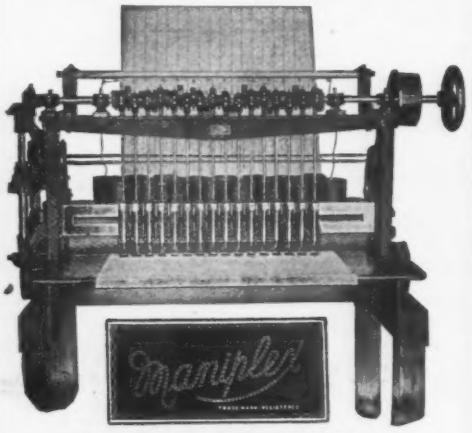

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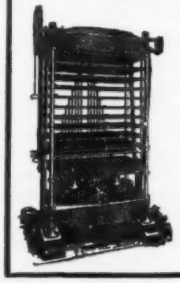

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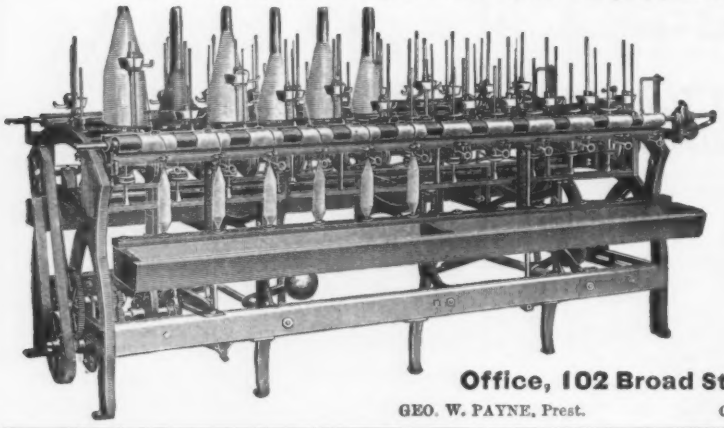

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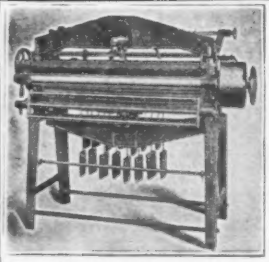

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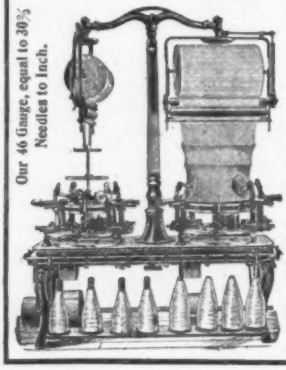

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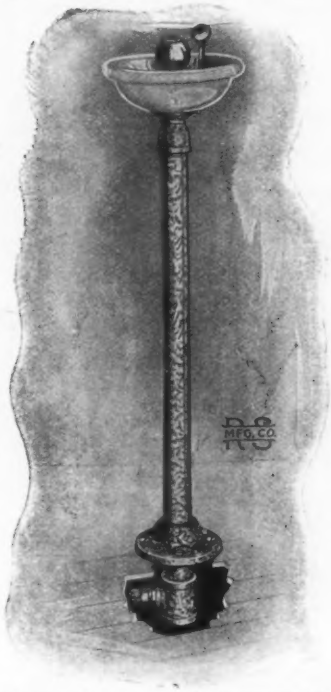

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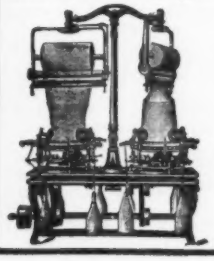
Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



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This design was adopted in 1875.

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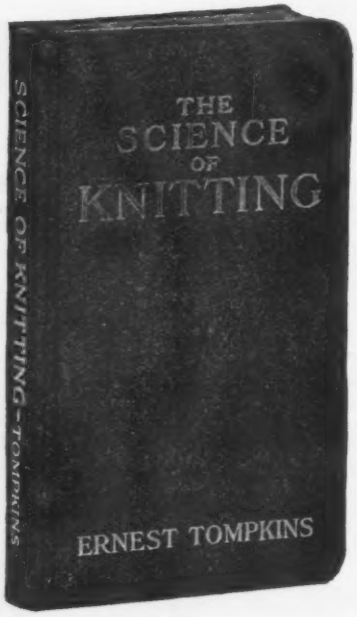

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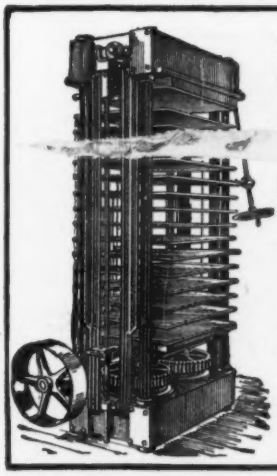

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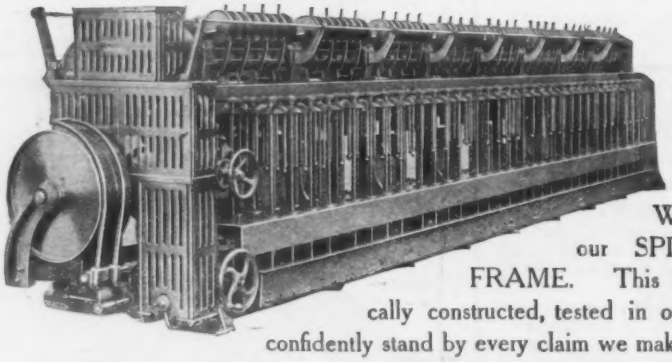

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